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The relationship between NHS labour force satisfaction, wages and retention: a systematic review of the literature

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The relationship between NHS labour force satisfaction, wages and retention: a systematic review of the literature

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Abstract:

Objectives: A systematic review was undertaken to understand the nature of the relationship between the NHS labour force and satisfaction, retention and wages.

Setting: The NHS workforce

Design: The review was conducted according to PRISMA guidelines. The literature was searched using 6 databases: Medline (1996-present), the Cumulative Index to Nursing and Allied Health Literature (CINAHL via EBSCO) (1984-present), Embase (1996-present), PsychINFO (1987-present), ProQuest (1996-present), Scopus (all years) and Cochrane library (all years). We used medical subject headings and key words relating to ‘retention’, ‘satisfaction’ and ‘pay’. Articles were eligible for inclusion if they were primary research studies or reviews that focused on the following relationships within the NHS workforce: wages and job satisfaction, job satisfaction and retention or wages and retention. Two independent reviewers screened all titles, abstracts and full texts, with arbitration by a third reviewer.

Results: A total of 40,364 articles were identified and after removing duplicates (n=22,851), articles were removed at the title (n=17,341), abstract (n=105) and full text (n=38) stages. A total of 29 full-text articles were included. They identified three broad themes, low job satisfaction impacting negatively on job retention, poor pay impacting negatively on staff satisfaction, and the limitations of increasing pay as means of improving staff retention. Several factors affected these relationships, including flexible hours, discrimination, promotion prospects, environment, location, training and staffing levels.

Conclusions: This review highlighted how multiple factors influence NHS labour force retention. Pay was found to influence satisfaction, which in turn affected retention. However, an increase in wages alone is unlikely to be sufficient to ameliorate the concerns of NHS workers. Improvements in the NHS environment may also be needed. More work is needed to identify how best to improve the satisfaction of individual groups of NHS employees in the view of improving retention.

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Article summary:

- *A systematic review undertaken to understand the nature of the relationship between the NHS labour force and satisfaction, retention and wages.*
- *6 databases were used to conduct this systematic review, 29 articles were included in the review*
- *This review recognises that job satisfaction is affected by morale, the quality of care provided by staff and professional development opportunities*
- *This review also established the negative effect that poor pay has on job satisfaction*
- *A clear relationship between job satisfaction and retention was found.*
- *Strengths and limitations:*
 - o *The majority of included studies focus on the satisfaction and retention of nurses and doctors, as such our findings may not be generalisable to other NHS professionals.*
 - o *This review submitted to PROSPERO and subsequently rejected on the basis that it would not be of "direct clinical relevance in treating a patient in practice"*
 - o *This is the first systematic review to ascertain the relationship between wages, job satisfaction and retention amongst the NHS workforce*
 - o *An extensive literature search was undertaken using six databases and grey literature*
 - o *The quality appraisal tool used was designed to be used as an educational pedagogic tool.*

Introduction

The National Health Service (NHS) has faced unprecedented demand for its services in recent times. During the first three months of 2018, 5.87 million people attended Accident and Emergency in England of which 1.1 million needed to be admitted for treatment.⁽¹⁾ However it is argued that the size of the workforce has not changed proportionally to the change in demand. The NHS suffers from staff shortages and this has resulted in significant staff pressures.^(2,3) Over 11% of nursing posts were also left unfilled in the first quarter of 2018 and figures from the NHS Pay Review Body (NHSPRB) show a shortage of other health care professionals, including 11,576 doctors.⁽⁴⁾

Nationals from the European Union (EU) make up 5.5% of the NHS workforce and

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current plans for Britain to leave the EU have created uncertainty.(5) The number of nurses joining the NHS from the European Economic Area (EEA) has dropped by 87% (n= 3,962) between 2016 and 2018, while the number leaving the UK increased by 29% (n=805).(6) This high staff turnover is related to a number of factors including poor job satisfaction, this impinges on the quality of care provided to patients.(7–9) The NHS invests heavily in the development of its workforce and so the loss of trained staff is not merely a monetary loss but a loss of expertise and experience.(10) Public Health England estimated that sickness absence amongst NHS staff costed the NHS £2.4bn in 2015.(11) NHS England have conceded that more can be done to improve staff health and wellbeing in view of improving staff retention.(11)

In 2010, a pay cap was imposed on all NHS staff, they thus performed the same or additional work for less remuneration.(12,13) There is a lack of evidence on how salary may influence NHS staff employment decisions. We conducted a systematic review to understand the nature of the relationship between NHS employee satisfaction, retention and wages, and explore what more could be done to improve satisfaction and retention in the NHS.

Methods:

This review followed the Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols (PRISMA-P) reporting guidelines.(14) We defined ‘retention’ as the ability to retain staff in NHS employment, ‘wages’ as the regular payment of staff for services provided, and ‘satisfaction’ as the contentment or fulfilment that one gains from an action – the ‘action’ being the job carried out by an NHS employee.

Inclusion and Exclusion criteria

Articles were eligible for inclusion if they were primary research studies or reviews that

focused on the relationship between either: (a) wages and satisfaction amongst NHS employees, (b) satisfaction of NHS employees and retention, and/or (c) wages of NHS employees and retention. We excluded any articles that focused on non-NHS employees, factors that affected non-early retirement, recruitment and students, and factors that were not related to satisfaction, wages or retention. Any non-English language publications were also excluded.

Search Strategy and rationale

The search was performed across six electronic databases in June 2018: Medline (OVID) (1996-present), the Cumulative Index to Nursing and Allied Health Literature (CINAHL via EBSCO) (1984-present), Embase (OVID)(1996-present), PsychINFO(OVID)(1987-present), ProQuest (1996-present), Scopus (all years) and Cochrane library (all years). The Open Grey database was also searched to identify sources from UK government boards and agencies e.g., NHSPRB. We used medical subject headings and key words relating to 'retention', 'satisfaction' and 'pay'. The search strategy can be found in appendix 1. The data extraction form can be found in appendix 2.

Study Selection

Two independent reviewers (KAB and AHK) screened all titles, abstracts and full texts, with arbitration by a third reviewer (CLT) if necessary. Reasons for exclusion at the full text stage were outlined in Figure 1 and Appendix 3.

Quality and anti-bias assurance

One reviewer evaluated the quality of studies using the Critical Appraisal Skills Programme (CASP) qualitative cascade. The CASP tool was designed to be used as an educational pedagogic tool, responses can be found in appendix 4.(15)

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Results

A total of 40,364 articles were identified and after removing duplicates (n=22,851), articles were removed at the title (n=17,341), abstract (n=105) and full text (n=38) stages. A total of 29 full-text articles were included, the majority of which were conducted and published in the UK (n=26). Three additional papers were published in Australia (n=1), Ireland (n=1) and the Netherlands (n=1) but their focus was on NHS employees. A range of different methods were used, including quantitative (n=8), qualitative (n=16), mixed methods (n=3) and reviews (n=2). We identified the following three key themes: how low job satisfaction impacted negatively on job retention, how poor pay appeared to impact negatively on staff satisfaction, and the limitations of increasing pay as a means to improve the retention of NHS staff. Each theme and associated sub-themes will be discussed in-turn.

Low job satisfaction impacted negatively on job retention

Several studies reported how job satisfaction amongst healthcare staff was negatively impacted on by low staff morale, inept management, an inability to partake in professional development or to provide patients with the desired level of care. (16–18)

One cross sectional study measured how satisfied GPs were with their job using the Warr-Cook-Wall scale and found that those with low job satisfaction were more likely to leave their profession.(19) Andrews who conducted 11 semi-structured interviews with nurses, reported how one respondent “*was no longer happy or satisfied with the*

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3 *job. There was no continuity, a lot of night shifts and weekends, and [it was] also very*
4 *stressful”.*(20) Newman et al., conducted interviews with 130 NHS nurses and
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6 identified several reasons for dissatisfaction, including staff shortages and a lack of
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8 appreciation.(16) Another study conducted in-depth interviews with 58 nurses and
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10 found that low morale appeared to influenced their decision to leave the NHS.(21)
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17 However, many NHS employees appeared to join the profession for its career
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19 opportunities, and several studies showed how they were less inclined to leave
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21 unsatisfactory roles if they felt that there was opportunities to enhance their career
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23 prospects. (16,21–23) Job satisfaction also appeared to vary between professions,
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25 locations, gender and race, with white employees more likely to have higher job
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27 satisfaction than their non-white counterparts, and women having greater job
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29 satisfaction than men. (33, 34)(26) Adams and Bond found that larger workforces with
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31 more devolved organisational structures appeared to create more of a positive
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33 experience for some nurses as they had better teamwork and more innovation, all
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35 possibly contributing to increased retention.(27)
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42 **Poor pay appeared to impact negatively on staff satisfaction**

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44 A number of studies highlighted how poor pay influenced staff job satisfaction.
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46 (16,28) Storey et al., found that poor pay was a major source of dissatisfaction
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48 amongst older primary care nurses,(29) with another study reporting how nurses did
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50 not feel adequately compensated for the work they did especially when compared to
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52 other health care professionals.(24) Hutton et al. conducted a survey of 658
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54 radiotherapists to assess job satisfaction and found that 72.2%(n=658) of
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56 radiographers were dissatisfied with their pay rise prospects.(30) Furthermore, only
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36% (n=236) of all respondents were satisfied with their pay prospects.(30) One study analysed 16,707 nurse responses to the care quality commission’s annual NHS national staff survey and found that they were more likely to continue in the profession if they were satisfied with their pay.(31)

The limitations of increasing pay as means to improving staff retention

Several studies acknowledged that increasing pay alone was not sufficient to maintain staff retention.(32,33) Frijters et al., found that the higher the predicted private sector wage relative to the NHS wage, the more likely nurses were to leave the NHS.(33) Agency nurses often receive higher rates of pay than those contracted to work for the NHS, which may influence employees intentions to leave.(10) Frijters et al. suggested that by increasing the hourly wage by 10%, the percentage of nurses leaving the NHS each year would decrease by 0.66% and 2119 nurses would be retained; however only 2% of the cost of increasing wages would be saved by lower turnover costs in a year.(33) Storey et al., conducted a cross-sectional survey with female primary care and community nurses and found that their pension, more pay and reduced working hours near retirement encouraged nurses across all age groups to remain in the NHS.(34) The study also found that a significantly larger proportion of younger nurses felt that pay was important.(34) Robinson et al., found that newly qualified nurses were most dissatisfied with their pay and that it was the main reason for why they considered leaving their job.(32) Simoens et al., found that GPs who earned less than £70,000 were more likely to report higher intentions to quit than those who earned more. (19)

However, some studies suggested that pay was not the only factor that influenced retention. Purvis et al., interviewed nurses (n=223) and concluded that the decision for nurses to leave the NHS was not solely related to poor pay and conditions but also

what they wanted from their “*exchange relationship*” e.g. feeling valued and gaining recognition as well as work partnerships.(35) Drennan et al., reported how one nurse felt that: “*pay is important, but most people don't come into nursing expecting high salaries – they have other motivations*”.(10) Frijters et al. found that for a large number of nurses, high wages did not compensate for poor working conditions, e.g. discrimination and high workload.(33) Investment in “*robust systems of communication*”, security and conflict resolution may also improve how nurses feel about their work and therefore influence retention, alongside pay.(17) For example, Newman et al., ascribed the loss of traditional rewards (i.e., praise and social approval) as a contributing factor for poor retention in nurses.(16,35) Loan-Clarke et al., surveyed 719 Allied Health Professionals (AHPs) and revealed how pensions were more important than pay for AHPs who worked for the NHS and in contrast to AHPs who did not work for the NHS.(36)

Table 1. A summary of potential recommendations elicited and developed from findings in selected articles

Recommendations	Brief explanations
<i>Flexibility</i>	Being more flexible to accommodate the needs of a diverse workforce in order to prevent NHS staff from leaving (18,19,29,36–38)
<i>CPD</i>	Acting to both encourage and help staff increase their skillset and promote working opportunities (16,22,30,34,37)
<i>Discrimination prevention</i>	Ensuring that the workforce feels welcome in spite of their background and circumstances (29,37)

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<i>Image makeover</i>	Acting to change the negative narrative concerning the NHS (16,22)
<i>Establishing/improving staff banks</i>	Reducing the need for trusts to obtain temporary staff from agencies (10)
<i>Valuing staff</i>	Valuing staff and ensuring that they do not feel taken for granted (18,21,28,30,34,39,40)
<i>Autonomy</i>	Giving staff the necessary autonomy to provide high quality patient care without being restricted unnecessarily (24,28,34)
<i>Targeted wage increases</i>	Preventing the NHS being outcompeted in specific circumstances and groups (32,33,41)

Discussion:

This review recognises that job satisfaction is affected by morale, the quality of care provided by staff and professional development opportunities, all of which is arguably influenced by management.(16–18) This review also established the negative effect that poor pay has on job satisfaction, an increase in pay alone was not however seen to improve staff retention.(16,28,32,33) Ultimately, we found a clear relationship between job satisfaction and retention, and by increasing pay you can potentially increase satisfaction and therefore retention.(17,34,37,42) This review discusses the above findings in turn with future recommendations (*Table 1*).

Our review found a clear relationship between employees' job satisfaction and the quality of care that they felt they provided (7,16,30,43). Poor staffing levels and increased workloads can contribute to reduced job satisfaction.(18,24,27,34,44) NHS employers have used a range of strategies to try and deal with staff shortages, including using agency staff (locums) on a short-term basis; however, this is not a sustainable solution.(10,16,45) Despite caps on the amount of money a healthcare provider can pay agency workers, hospitals have been known to breach these rules in order to meet the minimum staffing levels required to provide a safe environment.(46) Furthermore, this approach may adversely affect the quality of care received by patients, due to problems surrounding the quick integration of locums into teams.(4,47) NHS Nurses and AHPs are tempted by the better pay and flexibility agency work can offer.(36) Employees who are less concerned with pensionable benefits are more likely to leave the NHS when job satisfaction is low.(10)

Retention may also be affected by the manner in which the NHS treats its staff, suggesting that valuing employees could improve the dynamic within the NHS

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workplace environment.(16,23) Effective leadership can ensure that staff feel valued and supported.(16) Never has this been so pertinent as in modern times, with factors such as Brexit dominating the UK’s political landscape.(48) Flexible working arrangements should be offered and could allow nurses that may ordinarily retire, to opt out of exhaustive tasks as well as providing flexible working patterns. This may result in nurses feeling better valued, as they would still be able to undertake a large part of their role whilst also imparting their experience on younger peers.(23,34,38,48) Flexible working hours may also cater to those with young families.(22,46) While pay may have a significant influence on satisfaction amongst younger nurses, it is unlikely to compensate for discrimination and feelings of being undervalued amongst older colleagues.(29) A ‘one size fits all’ approach to improve retention and job satisfaction is unlikely to be successful and a more targeted approach is therefore to be recommended.

This review highlighted the importance of professional development in retaining a satisfied productive workforce.(2) Many healthcare workers felt that their future prospects had a fundamental role to play in both their happiness and job satisfaction.(16,21,22,34,37,51) Many nurses join the NHS as a means of obtaining and developing skills; staff should have access to continuing professional development (CPD) schemes alongside financial support and encouragement to obtain additional qualifications, if desired.(52) Shields and Ward analysed the 1994 national survey of nursing staff and found that the largest positive effect on job satisfaction was work environments in which training and holistic development are encouraged. The timing of CPD courses should also be considered as hosting programmes in the evenings may alienate shift workers and those with young

families.(29) The cost-benefit of implementing CPD frameworks in the NHS should be explored. Employers may find investment in CPD more beneficial in terms of job satisfaction and retention than a corresponding increase in wages.(24) However, other studies have questioned the evidence for using CPD to improve retention, particularly in older AHPs, and thus further research is needed.(34)

National Institute for Health and Care Excellence(NICE) and several other Health-orientated bodies have observed that acting to improve the wellbeing of employees can have a profoundly positive impact for staff and patients alike.(49,50) The Bewick independent review of the cardiac surgery service at St Georges Hospital for example found that staff felt poor surgery outcomes were inevitable as a result of the negative “*pervading atmosphere*”.(55) This may be further compounded by issues such as staff shortages and stress in the workplace, both of which may result in employees being more likely to consider their employment status.(31) A cumulative disorder referred to as “burnout” can affect an individual on an emotional, cognitive and behavioural level.(30) Staff welfare is rightly gaining more attention and is currently a Commissioning for Quality and Innovation target for NHS England. More research is required to identify the relationships between wellbeing and workforce retention. We note that the majority of included studies concentrated on the satisfaction and retention of nurses and doctors, and so our findings may not be generalisable to other professionals within the NHS. No articles were excluded as a result of poor quality; the qualitative quality appraisal tool used was however designed to be used as an educational pedagogic tool.

Conclusion:

This review identified a close relationship between satisfaction and retention; poor

satisfaction increases the likelihood of staff leaving the NHS. An increase in pay was shown to increase retention by improving satisfaction, however the extent to which it does so varies amongst different groups and the cost-benefit of this approach is questionable. The literature suggests that a combination of non-monetary factors affect NHS staff intentions to leave. Consequently improving CPD regimes and working environments may offer some potential solutions to improve retention.

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Contributionship statement:

SPS and RDS conceived this review. KB and AK conducted the literature search and extracted the data. KB led the writing of this manuscript, with all other co-authors (SPS, RDS, CT, and AK) commenting on subsequent drafts. All authors gave their approval for the final version to be published.

Competing interests:

There are no competing interests.

No Patient and Public involvement:

This research was done without patient and public involvement. Patients were not invited to contribute to the writing or editing of this nor were they invited to comment on the study design.

References:

1. NHS Improvement. Performance of the NHS provider sector for the year ended 31 March 2018 [Internet]. 2018 [cited 2019 Sep 7]. Available from: https://improvement.nhs.uk/documents/2852/Quarter_4_2017-18_performance_report.pdf
2. BMA - Working in a system under pressure [Internet]. [cited 2018 Nov 5]. Available from: <https://www.bma.org.uk/collective-voice/influence/key-negotiations/nhs-pressures/working-in-a-system-under-pressure>
3. NHS Pay Review Body: Thirty-First Report 2018. :158.
4. Performance of the NHS provider sector for the month ended 30 June 18 FINAL [Internet]. NHS Improvement; 2018 Jun [cited 2018 Nov 10]. Available from:

- https://improvement.nhs.uk/documents/3209/Performance_of_the_NHS_provider_sector_for_the_month_ended_30_June_18_FINAL.pdf
5. Baker C. NHS staff from overseas: statistics. 2018 Oct 10 [cited 2018 Nov 5]; Available from: <https://researchbriefings.parliament.uk/ResearchBriefing/Summary/CBP-7783>
 6. New NMC figures continue to highlight 'major concern' as more EU nurses leave the UK [Internet]. [cited 2018 Nov 10]. Available from: <https://www.nmc.org.uk/news/news-and-updates/new-nmc-figures-continue-to-highlight-major-concern-as-more-eu-nurses-leave-the-uk/>
 7. Newman K, Maylor U, B C. The nurse retention, quality of care and patient satisfaction chain. *Journal of health care quality assurance incorporating Leadership in health services*. 2001;
 8. McNeese-Smith DK. A content analysis of staff nurse descriptions of job satisfaction and dissatisfaction. *Journal of Advanced Nursing*. 1999 Jun 1;29(6):1332–41.
 9. Investing in success - NHS priorities for the new government [Internet]. NHS Providers; 2017 [cited 2018 Nov 10]. Available from: <http://nhsproviders.org/media/2933/investing-in-success-briefing.pdf>
 10. Drennan VM, Halter M, Gale J, Harris R. Retaining nurses in metropolitan areas: insights from senior nurse and human resource managers. *Journal of Nursing Management*. 1041 Nov;24(8):1041–8.
 11. NHS staff health & wellbeing: CQUIN 2017-19 Indicator 1 Implementation Support [Internet]. NHS England; 2018 [cited 2018 Nov 10]. Available from: <https://www.england.nhs.uk/wp-content/uploads/2018/05/staff-health-wellbeing-cquin-2017-19-implementation-support.pdf>
 12. Roberts A, Marshall L, Charlesworth A. A decade of austerity? The funding pressures facing the NHS from 2010/11 to 2021/22. London: Nuffield Trust. 2012;
 13. Inquiry MSNFTP. Report of the Mid Staffordshire NHS Foundation Trust Public Inquiry: Executive Summary. The Stationery Office; 2013. 126 p.
 14. Shamseer L, Moher D, Clarke M, Gherzi D, Liberati A, Petticrew M, et al. Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015: elaboration and explanation. *BMJ*. 2015 02;350:g7647.
 15. casp. CASP Checklists [Internet]. CASP - Critical Appraisal Skills Programme. [cited 2018 Nov 12]. Available from: <https://casp-uk.net/casp-tools-checklists/>
 16. Newman K, Chansarkar B. 'The nurse satisfaction, service quality and nurse retention chain': implications for management of recruitment and retention. *Journal of management in medicine*. 2002;
 17. Barron D, West E, Reeves R. Tied to the job: affective and relational components of nurse retention. *Journal of Health Services*. 2007 Apr;

18. Hann M, Reeves D, Sibbald B. Relationships between job satisfaction, intentions to leave family practice and actually leaving among family physicians in England. *Journal of Public Health*. 2011 Aug;21(4):499–503.
19. Simoens S, Scott A, Sibbald B. Job satisfaction, work-related stress and intentions to quit of Scottish GPS. *Scottish Medical Journal*. 2002 Aug;47(4):80–6.
20. Andrews GJ. Nurses who left the British NHS for private complementary medical practice: why did they leave? Would they return? *Journal of Advanced Nursing*. 2003 Feb;41(4):403–15.
21. Callaghan M. Nursing morale: what is it like and why? *Journal of Advanced Nursing*. 2003 Apr;42(1):82–9.
22. Coombs C, Arnold J, Loan-Clarke J, Martin C. Allied health professionals' intention to work for the National Health Service: A study of stayers, leavers and returners. *Health Services Management Research*. 2010 May;
23. Foster S. Making retention strategies work. *Journal of Nursing*. 2017 Feb;26(4).
24. Joshua-Amadi M. A study in motivation: recruitment and retention in the NHS. *Nursing Management - UK*. 2003 Feb;9(9):14–9.
25. Drennan V, Andrews S, Sidhu R, Peacock R. Attracting and retaining nurses in primary care. [Review]. *Journal of Community Nursing*. 2006 Jun;11(6):242–6.
26. Sibbald B, Bojke C, Gravelle H. National survey of job satisfaction and retirement intentions among general practitioners in England. *BMJ*. 2003 Jan 4;326(7379):22.
27. Adams A, Bond S. Staffing in acute hospital wards: part 1. The relationship between number of nurses and ward organizational environment. *Journal of Nursing Management*. 2003 Sep;11(5):287–92.
28. Sibbald B, Enzer I, U R. GP job satisfaction in 1987, 1990 and 1998: Lessons for the future? *Family Practice*. 2000;
29. Storey C, Cheater F, Ford J, Leese B. Retention of nurses in the primary and community care workforce after the age of 50 years: Database analysis and literature review. *Journal of Advanced Nursing*. 1596 Aug;
30. Hutton D, Beardmore C, Patel I, H W, H P. Audit of the job satisfaction levels of the UK radiography and physics workforce in UK radiotherapy centres 2012. *Journal of Radiology*. 1039 Jul;
31. Carter MR, Tourangeau AE. Staying in nursing: what factors determine whether nurses intend to remain employed? *Journal of Advanced Nursing*. 1589 Jul;68(7):1589–600.

32. Robinson S, Murrells T, Smith EM. Retaining the mental health nursing workforce: early indicators of retention and attrition. *Journal of Mental Health Nursing*. 2005 Dec;14(4):230–42.
33. Frijters P, Shields MA, Price SW. Investigating the quitting decision of nurses: panel data evidence from the British National Health Service. *Health Economics*. 2007 Jan;16(1):57–73.
34. Storey C, Cheater F, Ford J, Leese B. Retaining older nurses in primary care and the community. *Journal of Advanced Nursing*. 1400 Jul;
35. Purvis LJ, Cropley M. The psychological contracts of National Health Service nurses. *Journal of Nursing Management*. 2003 Mar;11(2):107–20.
36. Loan-Clarke J, Arnold J, Coombs C, Hartley R, Bosley S. Retention, turnover and return-A longitudinal study of allied health professionals in Britain. *Human Resource Management Journal*. 2010;20(4):391–406.
37. Shields MA, Ward M. Improving nurse retention in the National Health Service in England: the impact of job satisfaction on intentions to quit. *Journal of Health Economics*. 2001 Sep;20(5):677–701.
38. Gould D, Fontenla M. Strategies to recruit and retain the nursing workforce in England: A telephone interview study. *Journal of Research in Nursing*. 2006 Jan 1;11(1):3–17.
39. Harris RV, Ashcroft A, Burnside G, Dancer JM, Smith D, Grieveson B. Facets of job satisfaction of dental practitioners working in different organisational settings in England. *British Dental Journal*. 2008 Jan;204(1).
40. Appleton K, House A, Dowell A. A survey of job satisfaction, sources of stress and psychological symptoms among general practitioners in Leeds. *Br J Gen Pract*. 1998 Mar;48(428):1059–63.
41. Ikenwilo D, Scott A. The effects of pay and job satisfaction on the labour supply of hospital consultants. *Health Economics*. 1303 Dec;16(12):1303–18.
42. Larrabee JH, Janney MA, Ostrow CL, Withrow ML, Hobbs GR, Burant C. Predicting registered nurse job satisfaction and intent to leave. *J Nurs Adm*. 33(5):271–83.
43. Grol R, Mookink H, Smits A, Van Eijk J, Beek M, Mesker P, et al. Work satisfaction of general practitioners and the quality of patient care. *Family practice*. 1985;2(3):128–135.
44. Tovey EJ, Adams AE. The changing nature of nurses' job satisfaction: an exploration of sources of satisfaction in the 1990s. *Journal of Advanced Nursing*. 1999 Jul;30(1):150–8.
45. Pearson R, Reilly P, Robinson D. Recruiting and developing an effective workforce in the British NHS. *Journal of Health Services*. 2004 Jan;17–23.

46. What has the impact been of recent caps on NHS agency staff spend? [Internet]. The King's Fund. 2016 [cited 2018 Feb 8]. Available from: <https://www.kingsfund.org.uk/blog/2016/03/nhs-agency-staff-spend>

47. Murray R. The trouble with locums. *BMJ*. 2017 Feb 6;356:j525.

48. Cope J. NHS Pay Review Body Thirtieth Report 2017. Department of Health and Social Care; 179 p.

49. Ford P, Watson R, Manthorpe J, Andrews. Nurses Over 50: Options, Decisions and Outcomes. *Joy Ann*. 2004 Mar;24(2):300–1.

50. Storey C, Cheater F, Ford J, Leese B. Retaining older nurses in primary care and the community. *Journal of Advanced Nursing*. 2009 Jul;65(7):1400–11.

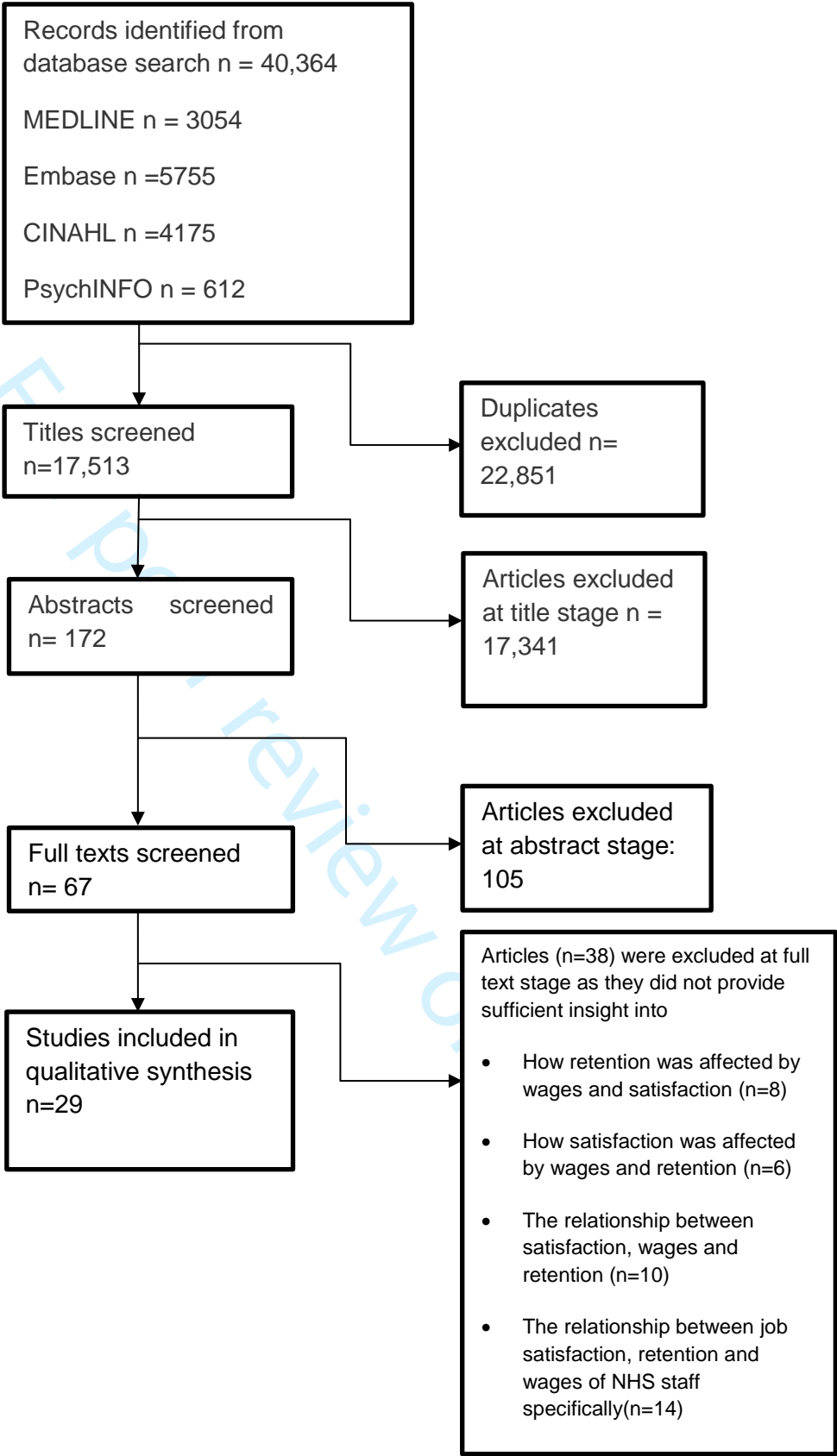
51. Ferguson J, Ashcroft D m, Hassell K. Factors influencing job satisfaction in community and hospital pharmacy. *Journal of Pharmacy Practice*. 2013 May;

52. Shields MA, Ward M. Improving nurse retention in the National Health Service in England: the impact of job satisfaction on intentions to quit. *Journal of Health Economics*. 2001 Sep;20(5):677–701.

53. U.o I. Burnout and psychiatric morbidity among doctors in the UK: A systematic literature review of prevalence and associated factors. *Psychiatrist*. 2017 Aug;

54. Bewick M. Independent Review of Cardiac Surgery Service St Georges Hospital NHS Trust. [Internet]. 2018. Available from: <https://www.stgeorges.nhs.uk/wp-content/uploads/2018/08/Independent-review-of-cardiac-surgery-%E2%80%93-St-George%E2%80%99s-University-Hospitals....pdf>

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A review of the literature on the relationship between NHS labour force satisfaction, wages and retention.

Appendices: Supporting Information

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A review of the literature on the relationship between NHS labour force satisfaction, wages and retention.

Appendix 1: Terms used in searches and rationale

Three main components: retention, wages and satisfaction

Words synonymous with the above components were used in search terms, the table below details words and terms thought to be synonymous with the components.

Table A3. Synonyms of satisfaction, wages and retention to be used in searches

Satisfaction	Wages	Retention	Profession
Job Satisfaction/	"Salaries and Fringe Benefits"/	Retention	Nurs*
Satisf*	Wages	Kept	Nursing Staff, Hospital/
Content*	Salar*	Held	Pharmac*
Fulfil*	Money	Maintain	Cleaner
Happ*	Incom*	Intent to stay	Administrative Personnel/
Gratif*	Earnings	Remain	Medical Receptionists/
motivat*	Remunerat*	Stay*	Nurses' Aides/
	Money received	Retain*	Health Care Assistant
	"Salaries and Fringe Benefits"/	Keep	Support Worker
			Porter
			Medical Secretaries/
			Occupational Therap*
			Physiotherap*
			Speech Therap*
			Midwifery/

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Radiographer
Nutritionists/
Biomedical
Scientists
Dentists/
Clinical scientist
Sonographer
Physicians/
Doctor
Family Practice/
GP
Consultant
General
Practitioners/

Final search strategy:

Key/Summary

NHS: 1 or 2

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Profession: 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29
Satisfaction: 30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38
Wages: 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46
Retention: 47 or 48 or 49 or 50 or 51 or 52 or 53 or 54 or 55

NHS+Profession+Satisfaction: 56 and 57 and 58
NHS+Profession+Wages: 56 and 57 and 59
NHS+Profession+Retention: 56 and 57 and 60
NHS+Profession+Satisfaction+Wages: 56 and 57 and 58 and 59
NHS+Profession+Satisfaction+Retention: 56 and 57 and 58 and 60
NHS+Profession+Wages+Retention: 56 and 57 and 59 and 60
NHS+Profession+Wages+Retention+Satisfaction: 56 and 57 and 58 and 59 and 60

Comprehensive list of search terms and the strategy used:

1. NHS
2. National Health Service
3. Nurs*
4. Nursing Staff, Hospital/
5. Pharmac*
6. Cleaner
7. Administrative Personnel/
8. Medical Receptionists/
9. Nurses' Aides/
10. Health Care Assistant
11. Support Worker
12. Porter
13. Medical Secretaries/
14. Occupational Therap*
15. Physiotherap*
16. Speech Therap*

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17. Midwifery/
 18. Radiographer
 19. Nutritionists/
 20. Biomedical Scientists
 21. Dentists/
 22. Clinical scientist
 23. Sonographer
 24. Physicians/
 25. Doctor
 26. Family Practice/
 27. GP
 28. Consultant
 29. General Practitioners/
-
30. Job Satisfaction/
 31. Satisf*
 32. Content*
 33. Fulfil*
 34. Happ*
 35. Gratif*
 36. motivat*
 37. morale
 38. Welbeing
-
39. "Salaries and Fringe Benefits"/
 40. Wages
 41. Salar*
 42. Money
 43. Incom*
 44. Earnings
 45. Remunerat*
 46. Money received
-
47. Retention

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- 48. Kept
 - 49. Held
 - 50. Maintain
 - 51. Intent to stay
 - 52. Remain
 - 53. Stay*
 - 54. Retain*
 - 55. Keep
-
- 56. 1 or 2
 - 57. 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29
 - 58. 30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38
 - 59. 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46
 - 60. 47 or 48 or 49 or 50 or 51 or 52 or 53 or 54 or 55
-
- 61. 56 and 57 and 58
 - 62. 56 and 57 and 59
 - 63. 56 and 57 and 60
 - 64. 56 and 57 and 58 and 59
 - 65. 56 and 57 and 58 and 60
 - 66. 56 and 57 and 59 and 60
 - 67. 56 and 57 and 58 and 59 and 60
- NHS: 1-2
Profession: 3-29
Satisfaction:30-38
Wages: 39-46
Retention: 47-55

Appendix 2: Data extraction form

Table A1. Data extraction form

A review of the literature on the relationship between NHS labour force satisfaction, wages and retention.

Author and Time of study	Country, Setting and Profession	Design/Methods	Aims	Findings	Recommendations
Newman et al. (2002)	UK Nurses	Findings of Qualitative study Based on >130 interviews	To present empirical evidence of the main factors influencing nurse satisfaction and retention and empirical support for a conceptual framework.	NHS and trust environment, satisfaction, retention, patient satisfaction, service capability and service quality all sequentially linked	Holistic approach needed
Appleton et al. (1998)	UK General Practitioners (GPs)	Qualitative Postal questionnaire	To determine levels of psychological symptoms, job satisfaction, and subjective ill health in GPs and their relationship to practice characteristics, and to compare levels of job satisfaction since the introduction of the 1990 GP contract with those found before 1990.	low job satisfaction amongst GPs significant problems in the physical and mental well-being of GPs. Majority of GPs felt that work affected physical health	
Coombs et al. (2010)	UK Allied Health Professionals (AHPs)	Qualitative Postal survey	To identify what influences allied health professionals' (AHPs) intention to work for the NHS.	Factors that influence intended behaviour to work for the NHS: Intention to work for NHS Professional development Media coverage numerous factors affect Moral obligation	Influencing public perceptions Emphasizing Professional development opportunities
Drennan et al. (2006)	UK Nurses (primary care)	Report on Department of Health project (systematic search, workshops, seminars)	To identify strategies and exemplars to assist Primary Care Trusts (PCTs) and the Workforce Development Confederations (WDCs) in Strategic Health Authorities in attracting and retaining nurses to primary care at registered nurse level	Did not find a lot of literature relating to the retention of nurses in primary care Geographical variation with regards to how effective some retention factors are	PCT, WDC and Department of health should address gap in detailed analysis' and strategic planning

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Hutton et al. (2014)	UK Radiographers	Quantitative survey (Utilised job satisfaction survey)	To support the development of methods to improve job satisfaction and effectiveness through gain understanding of the work experiences of radiotherapy professionals	Workers are prone to burnout. Workload can affect job satisfaction and should thus be paid attention to. Professional development can enhance satisfaction.	Using professional development as a means to improve job satisfaction
Harris et al (2008)	UK Dentists	Qualitative Survey	To compare global job satisfaction, and to compare facets of job satisfaction for practitioners working in the different organisational settings	Organisational settings - Autonomy, development and the ability to provide quality care affect satisfaction	
Sibbald et al. (2000)	UK General Practitioners	Postal surveys	To investigate changes in the Job satisfaction of GPs from 1987-1998	Autonomy, pay and workload affect GP job satisfaction	
Shields and Ward (2001)	Netherlands Nurses	Quantitative (data drawn from 1994 national survey of NHS nursing staff) Review of literature	To investigate the determinants of job satisfaction for nurses and identify the relationship between job satisfaction and nurses' intentions to leave the NHS	Low job satisfaction is concentrated in newly qualified (young) nursing staff. Perceptions of low pay compared to other public sector works result sin low job satisfaction. Work environment, encouragement of professional development and pay affect satisfaction. Pay could improve nurse retention	
Frijters et al. (2006)	England Nurses	Quantitative Utilised a longitudinal survey (quarterly labour force survey)	Investigation into the quitting behaviour of NHS nurses (through the use of a longitudinal survey)	Nurse retention may not be eliminated through increased pay	

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Simoens et al. (2002)	Scotland GPs	Review of literature	To explain why Scottish GPs are happier with their job and more likely to stay than English GPs	Age, workload, work conflict, out of hours work, and increased demands affects job satisfaction	Creating more flexible working hours, Establishing more realistic expectations of the role by patients
Andrews (2003)	England Nurses	Qualitative Combined questionnaire and semi-structured interview	To investigate the experiences and motivations of nurses who practice complementary medicine in the private sector and if those have left the NHS would return	Nurses left due to not having enough autonomy, nursing injuries and disillusion with the job and the NHS	
Callaghan (2003)	England Nurses	Qualitative Interviews	To explore nursing morale and to identify the factors that nurses felt influenced it in order to ascertain the factors that affect nurse retention	Nurses have poor morale nurse education and increased health service resources might improve morale disillusionment goes further than pay woes	
Hann et al. (2011)	England Family physicians	Secondary data analysis (national survey of family physicians working in the National Health Service (NHS) of England in 2001)	To explore the relationships between job satisfaction, leaving intentions and actually leaving	satisfied physicians stayed longer and were more likely to return if they left. Workloads, flexible hours, NHS reforms and the erosion of autonomy were reasons that were commonly cited by those who left the NHS	
Drennan et al. (2016)	England Nurses	Qualitative Semi-structured interviews (thematically analysed)	To investigate the views of senior nurse and human resources managers of methods to retain hospital nurses (in a metropolitan area)	Work environments affect retention. Pay could potentially help retention problems. Poor management has a significant effect on intentions to leave	Strategies should be tailored to specific segments in the nursing workforce
Storey et al.	England Nurses	Qualitative Postal	To examine issues associated with the impact	Pension considerations, enhanced pay and	

A review of the literature on the relationship between NHS labour force satisfaction, wages and retention.

(05/05/2009)			questionnaire	of age on the retention of NHS nurses in England	reducing working hours close to retirement were identified
Robinson et al (2005)	Australia Mental health nurses	health	Qualitative Semi structured interviews Questionnaire	To identify relationships between factors (career plans, career experiences and pathways)	Improving retention in mental health nursing is essential for meeting new national standards for service delivery. pay in relation to level of responsibility was the most cited reason for leaving.
Storey et al. (29/05/2009)	England Nurses		Literature review Database analysis	a study conducted to explore strategies for retaining nurses and their implications for the primary and community care nursing workforce.	Wages, flexibility and injuries affect retention according to the literature surveyed. There is not a lot of literature in relation to the factors influencing retention of older primary and community care nurses. Different factors affect nurses of different ages.
Loan-Clarke et al. (2010)	United Kingdom AHP		Qualitative Questionnaire longitudinal	To identify reasons for staying in and out of the NHS	Pension has a greater effect on 'stayers' in the NHS but pay was the prime economic focus for non-NHS AHPs
Carter and Tourangeau (2012)	England Nurses		Quantitative	The aim of the study was to test, quantitatively, the principles of the Tourangeau et al. (2010) model of determinants of nurses' intentions to remain employed by using data collected from a sample of nursing staff in England	An inability to provide quality care affects satisfaction. Physical and psychological responses to work would be associated with nurses' intentions to remain employed
Tovey and Adams	England Nurses		Qualitative and Quantitative	to identify the major sources of nurses' job	nurses are not a homogenous group with

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(1999)			satisfaction and dissatisfaction in acute hospital wards in the early 1990s, and to assess whether or not nurses' job satisfaction changes over time	regard to job satisfaction
Newman et al. (2001)	UK Nurses	Mixed	To examine nurse retention	nurse retention is a complex issue
Purvis and Cropley (2003)	UK Nurses	Quantitative	To understand the psychological contract model	To understand the expectations of NHS nurses in A psychological contract exists amongst NHS nurses
Barron et al. 2007	England Nurses	Qualitative Cross-sectional postal survey	To investigate whether affective and relational components of nurses' experience of work have a significant impact on their intentions to leave either the job or the nursing profession in models that control for other factors (sociodemographic, work conditions, perceptions of quality of care) that are known to affect career decisions.	Pay, Satisfaction, workload, abuse, environment, managers and autonomy all affect retention
Sibbald et al. 2003	England GPs	Qualitative Survey	To measure general practitioners' intentions to quit direct patient care, to assess changes over time and to investigate associated factors e.g. job satisfaction	Increased intentions to quit. Decreased satisfaction. Higher job satisfaction and having kids results in decreased likelihood of quitting. Dissatisfaction mirrors wider discontent with doctors changing role within society Improve satisfaction. Intention to quit may not actually result in quitting. Improving satisfaction may increase numbers of GPs and improve their

A review of the literature on the relationship between NHS labour force satisfaction, wages and retention.

Adams and Bond 2000	UK	Qualitative Survey Ward Organizational Features Scales (WOFS)	the importance of organizational features of acute hospital wards as predictors of nurses' job satisfaction, over and above the importance of individual nurse characteristic	Autonomy, Recognition, interpersonal relationships affect satisfaction Sufficient mix of appropriate staff to cover workload, personal development, good working relationships can be used to predict satisfaction relationship between grade and job satisfaction was weak.	working lives. reating conditions that facilitate intra-professional teamwork to improve satisfaction.
Gould and Fonenla 2006	UK	Survey Telephone	Describe the type of initiatives undertaken by senior nurses responsible for recruitment and retention.	Retention has be learnt about through asking employees why they are quitting. Job satisfaction influenced by managers Flexibility has a role in retention and satisfaction particularly for shift workers	
Joshua-Amadi 2002	UK Nurses	Qualitative Survey	Discover why registered nurses leave the NHS as well as to make appropriate recommendations to reduce poor retention	The below have a role in poor retention poor communication poor management inappropriate remuneration poor quality of care due to lack of planning, work overload and interruptions poor work environment (conflict) lack of a voice from	The NHS should look into: Leadership equitable pay job redesign - autonomy valuing staff flexibility sharing best practice Motivation

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professional body					
Foster 2017	UK Nurses	Qualitative Review	Identify solutions to retention crisis	valued opportunity to provide feedback positive environment	Use literature to devise a retention strategy
Ikenwilo and Scott 2007	UK Consultants	Quantitative	evaluate change in consultant labour supply as a result of changes to pay	creasing job satisfaction may improve retention but will also reduce the hours worked of consultants	

Appendix 3: Reasons for exclusion of full texts

Table A2. details the reasons for exclusions of articles at the full text stage

Reason for exclusion	
Did not provide an apt level of insight into how retention is affected by wages/satisfaction - A	8
Did not provide an apt level insight into how satisfaction is affected by wages and how it affects retention – B	6
Did not provide enough insight into the relationship between satisfaction , wages and retention – C	10
Did not focus on the relationship between job satisfaction, retention and wages of NHS staff specifically -D	14
Total	38

Appendix 4 CASP tool responses.

CASP: The CASP tool can be accessed via this link: <http://www.casp-uk.net/casp-tools-checklists>

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Author and date	Clear Statemen t	Appropriatene ss of qualitative method	Appropria te Design	APT Recruitme nt	Apt Data collection	Considerati on of relationship between research and participants	Ethic al issue s	Clear stateme nt of findings	Rigor of data analysi s	Valuable ?
1. Newman et al. (2002)	Y	Y	Y	Y	Y	CT	Y	Y	Y	V
2. Appleton et al. (1998)	Y	Y	Y	Y	CT	Y	CT	Y	Y	V
3. Coombs et al (2010)	Y	Y	Y	Y	Y	CT	CT	Y	Y	V
4. Drennan et al. (2006)	Y	Y	Y	Y	Y	Y	CT	Y	Y	V
5. Harris et al (2008)	Y	Y	Y	Y	CT	Y	CT	Y	Y	V
6. Hutton et al. (2014)	Y	Y	Y	Y	Y	CT	Y	Y	Y	V
7. Sibbald et al. (2000)	Y	Y	Y	Y	Y	Y	CT	Y	Y	V
8. Frijters et al. a. (2006)	Y	Y	Y	Y	Y	CT	CT	Y	Y	Y
9. Simoens et al. (2002)	Y	Y	Y	Y	Y	Y	CT	Y	Y	V
10. Andrews (2003)	Y	Y	Y	Y	Y	Y	CT	Y	Y	V
11. Callaghan (2003)	Y	Y	Y	Y	Y	Y	Y	Y	Y	V
12. Hann et al. (2011)	Y	Y	Y	Y	Y	Y	CT	Y	Y	V
13. Drennan et al. (2016)	Y	Y	Y	Y	Y	Y	Y	Y	Y	V
14. Storey et al. (29/05/2009)	Y	Y	Y	Y	Y	CT	CT	Y	Y	V
15. Robinson et al (2005)	Y	Y	Y	Y	Y	CT	CT	Y	Y	V
16. Storey et al. (05/05/2009)	Y	Y	Y	Y	Y	Y	CT	Y	Y	V
17. Loan-Clarke et al. (2010)	Y	Y	Y	Y	Y	CT	CT	Y	Y	V
18. Tovey and Adams (1999)	Y	Y	Y	Y	Y	CT	CT	CT	Y	V

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19. Carter and Tourangeau (2012)	Y	Y	Y	Y	Y	Y	Y	Y	Y	V
20. Newman et al. (2001)	Y	Y	Y	Y	Y	CT	CT	Y	Y	V
21. Barron et al. (2007)	Y	Y	Y	Y	Y	CT	Y	Y	Y	V
22. Purvis and Cropley (2003)	Y	Y	Y	Y	Y	Y	CT	Y	Y	V
23. Sibbald et al. (2003)	Y	Y	Y	Y	Y	Y	CT	Y	Y	V
24. Shields and Ward (2001)	Y	Y	Y	Y	Y	CT	Y	Y	Y	V
25. Adams and Bond (2000)	Y	Y	Y	Y	Y	Y	CT	Y	Y	V
26. Gould and Fontenla (2006)	Y	Y	Y	Y	Y	Y	Y	Y	Y	V
27. Joshua-Amadi (2002)	Y	Y	Y	Y	Y	Y	CT	Y	Y	V
28. Foster (2017)	Y	Y	Y	N	N	NA	CT	Y	N	V
29. Ikenwilo and Scott (2007)	Y	Y	Y	Y	Y	Y	Y	Y	Y	V

Y= Yes

CT = Cannot tell

N=No

NA= Not applicable

V=Very

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SPS and RDS conceived this review. KB and AK conducted the literature search and extracted the data. KB led the writing of this manuscript, with all other co-authors (SPS, RDS, CT, and AK) commenting on subsequent drafts. All authors gave their approval for the final version to be published.

A review of the literature on the relationship between NHS labour force satisfaction, wages and retention.

Competing interests:

There are no competing interests.

No Patient and Public involvement:

This research was done without patient and public involvement. Patients were not invited to contribute to the writing or editing of this nor were they invited to comment on the study design.

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PRISMA 2009 Checklist

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	1
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	3/4
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	4
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	-
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	5
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	5
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	Appendix 1
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	5
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	5
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	-
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	6
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	-
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	-



PRISMA 2009 Checklist

Section/topic	#	Checklist item	Reported on page #
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	-
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	-
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	Figure 1
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	Appendix 2
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	6/appendix 4
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	26 appendix 2/4
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	-
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	-
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	-
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	11
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	13
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	13
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	14



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BMJ Open

The relationship between labour force satisfaction, wages and retention within the United Kingdom's National Health Service: a systematic review of the literature

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The relationship between labour force satisfaction, wages and retention within the United Kingdom's National Health Service: a systematic review of the literature

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Abstract:

Objectives: A systematic review was undertaken to understand the nature of the relationship between the United Kingdom’s National Health Service (NHS) labour force and satisfaction, retention and wages.

Design: Narrative systematic review

Data sources: The literature was searched using 6 databases in January 2020: Medline (1996-present), the Cumulative Index to Nursing and Allied Health Literature (CINAHL via EBSCO) (1984-present), Embase (1996-present), PsychINFO (1987-present), ProQuest (1996-present), Scopus (all years) and Cochrane library (all years). We used medical subject headings and key words relating to ‘retention’, ‘satisfaction’ and ‘wages’.

Eligibility criteria for selecting studies: Primary research studies or reviews that focused on the following relationships within the NHS workforce: wages and job satisfaction, job satisfaction and retention, or wages and retention.

Data extraction and synthesis: Two independent reviewers screened all titles, abstracts and full texts, with arbitration by a third reviewer.

Results: 27,803 articles were identified and after removing duplicates (n=17,156), articles were removed at the title (n=10,421), abstract (n=150) and full text (n=45) stages. A total of 31 full-text articles were included. They identified three broad themes, low job satisfaction impacting negatively on job retention, poor pay impacting negatively on staff satisfaction, and the limitations of increasing pay as a means of improving staff retention. Several factors affected these relationships, including the environment, discrimination, flexibility, autonomy, training and staffing levels.

Conclusions: This review highlighted how multiple factors influence NHS labour force retention. Pay was found to influence satisfaction, which in turn affected retention. An increase in wages alone is unlikely to be sufficient to ameliorate the concerns of NHS workers. More research is needed to identify the role of autonomy and satisfaction. A system leadership approach underpinned by data is required to implement bespoke job satisfaction improvement strategies to improve retention and achieve the goals of the NHS Long Term Plan.

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Strengths and limitations of this study:

- This is the first systematic review to ascertain the relationship between wages, job satisfaction and retention amongst the NHS workforce
- An extensive literature search was undertaken using six databases and grey literature
- The majority of included studies focus on the satisfaction and retention of clinicians, as such our findings may not be generalisable to other NHS professionals

- *The quality appraisal tool used was designed to be used as an educational pedagogic tool*
- *The findings of the review are relevant to NHS policymakers and managers seeking to improve staff satisfaction and retention*

Introduction

The United Kingdom's National Health Service (NHS) has faced unprecedented demand for its services in recent times. During the first three months of 2018, 5.87 million people attended Accident and Emergency in England of which 1.1 million needed to be admitted for treatment.(1) It is argued that the size of the workforce has not changed proportionally to the change in demand. The NHS suffers from staff shortages and this has resulted in significant staff pressures.(2) In the third quarter of 2018/19, 11% of nursing posts were also left unfilled and figures from the NHS Pay Review Body (NHSPRB) show a total workforce shortage of just over 100,000 full time equivalent vacancies.(3)

Nationals from the European Union (EU) make up 5.5% of the NHS workforce and there are 33 trusts where 10% of the workforce are EU nationals.(4) Notably, the number of initial nursing registrants from the European Economic Area (EEA) is ~90% lower than it was at its peak in 2016 (n=9389) and the percentage of EEA-qualified nurses leaving the register is 16% greater than it was in 2015, before the UK's EU membership referendum.(3) Evidently, the United Kingdom's departure from the EU poses workforce concerns.

High staff turnover is related to a number of factors including poor job satisfaction, this impinges on the quality of care provided to patients.(5–7) The NHS invests in the development of its workforce and so the loss of trained staff is not merely a monetary loss but a loss of expertise and experience.(8) Public Health England estimated that sickness absence amongst NHS staff costed the NHS £2.4bn in 2015.(9) NHS England have conceded that more can be done to improve staff health and wellbeing in view of improving staff retention and acknowledge that “more of the same” will not enable the delivery of the NHS Long Term Plan.(9,10) Further to that, the Interim NHS People Plan states that improving retention is the ‘most immediate action’ to be taken to improve staff levels underpinning the importance of this study.(10)

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In 2010, a pay cap was imposed on all NHS staff, they thus performed the same or additional work for less remuneration.(11,12) There is a lack of evidence on how salary may influence NHS staff employment decisions.

We conducted a systematic review to understand the nature of the relationship between NHS employee satisfaction, retention and wages, and to explore the effectiveness of potential satisfaction and retention improvement strategies in the NHS.

Methods

This review was reported and conducted in accordance with the Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols (PRISMA-P).(13) We defined ‘retention’ as the ability to retain staff in NHS employment, ‘wages’ as the regular payment of staff for services provided, and ‘satisfaction’ as the contentment or fulfilment that one gains from an action – the ‘action’ being the job carried out by an NHS employee.

Inclusion and Exclusion criteria

Articles were eligible for inclusion if they were primary research studies or reviews that focused on the relationship between either: (a) wages and satisfaction amongst NHS employees, (b) satisfaction of NHS employees and retention or (c) wages of NHS employees and retention. We excluded any articles that focused on non-NHS employees, factors that affected non-early retirement, recruitment and students, and factors that were not related to satisfaction, wages or retention. Any non-English language publications were also excluded.

Search Strategy and rationale

The search was performed across six electronic databases in January 2020: Medline (OVID) (1996-present), the Cumulative Index to Nursing and Allied Health Literature (CINAHL via EBSCO) (1984-present), Embase (OVID)(1996-present), PsychINFO(OVID)(1987-present), ProQuest (1996-present), Scopus (all years) and Cochrane library (all years). The Open Grey database was also searched to identify sources from UK government

boards and agencies e.g. NHSPRB. We used medical subject headings and key words relating to 'retention', 'satisfaction' and 'pay'. The search strategy can be found in appendix 1. The data extraction form can be found in appendix 2.

Study Selection

Two independent reviewers (KAB and AHK) screened all titles, abstracts and full texts, with arbitration by a third reviewer (CLT) if necessary. Reasons for exclusion at the full text stage were outlined in Figure 1 and Appendix 3.

Quality and anti-bias assurance

One reviewer evaluated the quality of studies using the Critical Appraisal Skills Programme (CASP) qualitative cascade, responses can be found in appendix 4.(14)

Patient and Public involvement

This research was done without patient and public involvement. Patients were not invited to contribute to the writing or editing of this nor were they invited to comment on the study design.

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Results

Our search revealed 27,803 articles, after removing duplicates (n=17,156) articles were removed at the title (n=10,421), abstract (n=150) and full text (n=45) stages. A total of 31 full-text articles were included, the majority of which were conducted and published in the UK (n=28). Three additional papers were published in Australia (n=1), Ireland (n=1) and the Netherlands (n=1) but their focus was on NHS employees. A range of different methods were used, including quantitative (n=8), qualitative (n=18), mixed methods (n=3) and reviews (n=2). We identified the following three key themes: how low job satisfaction impacted negatively on job retention, how poor pay appeared to impact negatively on staff satisfaction, and the limitations of increasing pay as a means to improve the retention of NHS staff. Each theme and associated sub-themes will be discussed in-turn.

Low job satisfaction impacted negatively on job retention

Several studies reported how job satisfaction amongst NHS healthcare staff was negatively impacted on by low staff morale, inept management, an inability to partake in professional development or to provide patients with the desired level of care. (15–18)

One cross sectional study measured how satisfied GPs were with their job using the Warr-Cook-Wall scale and found that those with low job satisfaction were more likely to leave their profession.(19) Andrews conducted 11 semi-structured interviews with nurses, and reported how one respondent “*was no longer happy or satisfied with the job. There was no continuity, a lot of night shifts and weekends, and [it was] also very stressful*”.(20) Newman et al., conducted interviews with 130 NHS nurses and identified several reasons for dissatisfaction, including staff shortages and a lack of appreciation.(15) Another study conducted in-depth interviews with 58 nurses and found that low morale appeared to influenced their decision to leave the NHS.(21)

However, many NHS employees appeared to join the profession for its career opportunities, and several studies showed how they were less inclined to leave unsatisfactory roles if they felt that there were opportunities to enhance

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3 their career prospects.(15,21–23) Job satisfaction also appeared to vary between professions, locations,
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5 organisational settings, gender and race, with white employees more likely to have higher job satisfaction than
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7 Black and Ethnic (BME) staff, and women having greater job satisfaction than men.(24–28) Adams and Bond found
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9 that larger workforces with more devolved organisational structures appeared to create more of a positive
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11 experience for some nurses as they had better teamwork and more innovation, all possibly contributing to increased
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13 retention.(29)
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20 **Poor pay appeared to impact negatively on staff satisfaction**

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22 A number of studies highlighted how poor pay influenced staff job satisfaction. (15,30) Storey et al., found that
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24 poor pay was a major source of dissatisfaction amongst older primary care nurses, with another study reporting how
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26 nurses did not feel adequately compensated for the work they performed.(24,31) Hutton et al. conducted a survey
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28 and found that 72.2% (n=658) of radiographers were dissatisfied with their pay rise prospects.(32) Furthermore,
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30 only 36% (n=236) of all respondents were satisfied with their pay prospects.(32) One study analysed 16,707 nurse
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32 responses to the Care Quality Commission's (CQC) annual NHS national staff survey and found that they were
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34 more likely to continue in the profession if they were satisfied with their pay.(33)
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40 **The limitations of increasing pay as a means to improving staff retention**

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42 Several studies acknowledged that increasing pay alone was not sufficient to maintain staff retention.(34,35) Frijters
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44 et al., found that the higher the predicted private sector wage relative to the NHS wage, the more likely nurses were
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46 to leave the NHS.(35) Agency nurses often receive higher rates of pay than those contracted to work for the NHS,
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48 which may influence employees intentions to leave.(8) Frijters et al. suggested that by increasing the hourly wage
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50 by 10%, the percentage of nurses leaving the NHS each year would decrease by 0.66% and 2119 nurses would be
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52 retained; however only 2% of the cost of increasing wages would be saved by lower turnover costs in a year.(35)
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54 Storey et al., conducted a cross-sectional survey with female primary care and community nurses and found that
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56 their pension, more pay and reduced working hours near retirement encouraged nurses across all age groups to
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remain in the NHS.(36) The study also found that a significantly larger proportion of younger nurses felt that pay was important.(36) Robinson et al., found that newly qualified nurses were most dissatisfied with their pay and that it was the main reason for why they considered leaving their job.(34) Simoens et al., found that GPs who had a household income equal to or less than £70,000 in 2002 were more likely to report higher intentions to quit than those with a higher household income. Although wages and household income have likely changed over the years these sentiments have been echoed in more recent studies.(18,19) Lambert et al. sent questionnaires in 2011 and 2015 to doctors (aggregated response n=5291), three years after they graduated, to identify reasons for considering leaving medicine or the UK. Almost two thirds n=3145 (60.3%) of respondents were not definitely intent on staying in UK medicine and one of the top reasons identified was ‘UK pay and conditions’(18). Interestingly, those surveyed in 2015 cited reasons relating to ‘UK pay and conditions’ much more frequently compared to those surveyed in 2011 (21.6% vs 7.7% respectively).(18)

However, some studies suggested that pay was not the only factor that influenced retention. Purvis et al., interviewed nurses (n=223) and concluded that the decision for nurses to leave the NHS was not solely related to poor pay and conditions but also what they wanted from their “*exchange relationship*” e.g. feeling valued and gaining recognition as well as work partnerships.(37) Drennan et al., reported how one nurse felt that: “*pay is important, but most people don't come into nursing expecting high salaries – they have other motivations*”.(8) Frijters et al. found that for a large number of nurses, high wages did not compensate for poor working conditions, e.g. discrimination and high workload.(35) Investment in “*robust systems of communication*”, security and conflict resolution may also improve how nurses feel about their work and therefore influence retention, alongside pay.(16) For example, Newman et al., ascribed the loss of traditional rewards (i.e. praise and social approval) as a contributing factor for poor retention in nurses.(15,37) Loan-Clarke et al., surveyed 719 Allied Health Professionals (AHPs) and revealed how pensions were more important than pay for AHPs who worked for the NHS in contrast to AHPs who did not work for the NHS.(38)

Table 1. A summary of potential recommendations elicited and developed from findings in selected articles

Recommendations	Brief explanations
<i>Flexibility</i>	Being more flexible to accommodate the needs of a diverse workforce, harnessing data to learn more about the workforce(17–19,31,38–40)
<i>Continuing Professional Development</i>	Acting to both encourage and help staff increase their skillset and promote working opportunities (15,22,26,32,36,39)
<i>Discrimination prevention</i>	Discrimination is harmful on many fronts, it is imperative that all members of the workforce feel welcome and as such an inclusive culture should be fostered (31,39)
<i>Improving the narrative</i>	Acting to change the negative narrative concerning the NHS through communication and engagement (15,22)
<i>Establishing/improving staff banks</i>	Reducing the need for trusts to obtain temporary staff from agencies (8)
<i>Valuing staff</i>	Valuing staff and ensuring that they do not feel taken for granted (17,21,27,30,32,36,41)
<i>Autonomy</i>	Giving staff the necessary autonomy to provide high quality patient care without being restricted unnecessarily (16,24,26,30,36)
<i>Targeted wage increases</i>	Preventing the NHS being outcompeted in specific circumstances and groups (34,35,42)

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Discussion

This review recognises that job satisfaction is affected by morale, the quality of care provided by staff and professional development opportunities, all of which is arguably influenced by management and ultimately policy within the NHS.(15–17) This review also established the negative effect that poor pay has on job satisfaction, yet an increase in pay alone was not however seen to improve staff retention.(15,30,34,35,42) We found a clear relationship between job satisfaction and retention, and by increasing pay you can potentially increase satisfaction and therefore retention in the NHS.(16,36,39,43) This review discusses the above findings in turn with future recommendations (*Table 1*).

Our review found a clear relationship between NHS employees’ job satisfaction and the quality of care that they felt they provided (5,15,32,44). Poor staffing levels and increased workloads can contribute to reduced job satisfaction.(17,24,29,36,45) NHS employers have used a range of strategies to try and deal with staff shortages, including using agency staff (locums) on a short-term basis; however, this is not a sustainable solution.(8,15,46) Despite caps on the amount of money a healthcare provider can pay agency workers, hospitals have been known to breach these rules in order to meet the minimum staffing levels required to provide a safe environment.(46) Furthermore, this approach may adversely affect the quality of care received by patients, due to problems surrounding the quick integration of locums into teams.(47,48) NHS Nurses and AHPs are tempted by the better pay and flexibility agency work can offer.(38,46) Employees who are less concerned with pensionable benefits are therefore more likely to leave the NHS, particularly when job satisfaction is low.(8) Preliminary plans outlined in the Interim NHS People Plan to create collaborative staff banks have the potential to increase flexibility and the impact of this should be closely followed.

Retention may also be affected by the manner in which the NHS treats its staff, suggesting that valuing employees could improve the dynamic within the NHS workplace environment.(15,23) Effective leadership can ensure that staff feel valued and supported.(15) Never has this been so pertinent as in modern times, with factors such as Brexit

dominating the UK's political landscape.(49) Freeing up departments to prepare for Brexit resulted in a fast-tracked one-year Spending Round, as opposed to the anticipated 3-4 year budgets consequently hindering the deliverability of workforce and capital elements included in the long term plan.(49) Flexible working arrangements should be offered and could allow nurses that may ordinarily retire, to opt out of exhaustive tasks as well as providing flexible working patterns.(50) Efforts such as these may result in NHS staff feeling better valued, as they would still be able to undertake a large part of their role whilst also imparting their experience on younger peers.(23,36,40,51) Flexible working hours may also cater to those with young families.(52) While pay may have a significant influence on satisfaction amongst younger nurses, it is unlikely to compensate for discrimination and feelings of being undervalued.(31) A 'one size fits all' approach to improve retention and job satisfaction is clearly unlikely to be successful - a more targeted approach reinforced by the use of data is therefore to be recommended.

The Interim People Plan points towards actions to embed the Workforce Race and Disability Equality Standard, and to close the gender pay gap.(53) Recent research has also identified an ethnic pay gap amongst NHS doctors, which may result in staff feeling less valued.(54) The 2019 Workforce Race Equality Standard report stated that 15.3% of BME staff personally experienced discrimination at work from other colleagues compared to 6.4% of their white colleagues; the former percentage has risen over the last four years.(53) An evidenced-based approach is required to develop and implement interventions to improve equality related matters and effective system leadership will be vital to enable a cultural change.

This review highlighted the importance of professional development in retaining a satisfied productive workforce.(15,36) Many healthcare workers felt that their future prospects had a fundamental role to play in both their happiness and job satisfaction.(15,18,21,22,36,39,55) A lot of staff join the NHS as a means of obtaining and developing skills; staff should have access to continuing professional development (CPD) schemes alongside financial support and encouragement to obtain additional qualifications, if desired.(56) Indeed, a lack of CPD access has been highlighted as an inhibitor of retention, however, research suggests that CPD is not a panacea, particularly

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for certain employer groups e.g. older staff. (36,57) For example, apathy towards CPD resources amongst older staff may stem from usage of resources that are not adapted towards their needs.(31,50) Care is therefore needed to avoid alienating certain groups of the workforce e.g., shift workers and older staff.(31) Employers may find investment in CPD more beneficial in terms of job satisfaction and retention than a corresponding increase in wages.(24) Moriarty et al. however acknowledge that there are difficulties surrounding the ability to directly demonstrate benefits for patients and improved retention. Local variation is known to result in differences in the standard of CPD opportunities offered.(26,57) This highlights the need for a whole systems approach to identify how CPD could be utilised to improve satisfaction and thus retention amongst different employer groups. (57)

Gray et al. suggest using both CPD and increased autonomy to improve employee satisfaction, particularly in light of the specialisation of the workforce.(10,26) Autonomy is thought to have a strong influence on job satisfaction, yet different roles and environments afford staff varying levels of independence, and standardisation efforts may reduce autonomy.(26,31) The Interim NHS People Plan touches on many of the recommendations in this review, however further research is needed to understand how autonomy can be retained, whilst supporting efforts to standardise and improve the quality of care.

The National Institute for Health and Care Excellence (NICE) and several other Health-orientated bodies have observed that acting to improve the wellbeing of employees can have a profoundly positive impact for staff and patients alike.(3,58) The Bewick independent review of the cardiac surgery service at St Georges Hospital for example found that staff felt poor surgery outcomes were inevitable as a result of the negative “*pervading atmosphere*”.(59) This may be further compounded by issues such as staff shortages and stress in the workplace, both of which may result in employees being more likely to consider their employment status.(33) A cumulative disorder referred to as “burnout” can affect an individual on an emotional, cognitive and behavioural level.(32,41,58)

The majority of included literature focused on nurses and doctors, and so our findings may not be generalisable to other professionals, it is however nursing retention rates that are of most concern.⁽¹⁰⁾ We also acknowledge that a notable proportion of studies and data discussed concern England, despite the NHS consisting of patients from Scotland, Wales and Northern Ireland. This highlights the need for more research into the NHS workforce outside of England concerning satisfaction and retention. No articles were excluded as a result of poor quality; the quality appraisal tool used was however designed to be used as a pedagogic tool.

Conclusion

This is the first systematic review to ascertain the relationship between wages, job satisfaction and retention amongst the NHS workforce. We identified a close relationship between satisfaction and retention; poor satisfaction increases the likelihood of staff leaving the NHS. An increase in pay was shown to increase retention by improving satisfaction, however the extent to which it does so varies amongst different groups and the cost-benefit of this approach is questionable. The literature suggests that a combination of non-monetary factors affect NHS staff intentions to leave. Creating bespoke CPD regimes, increasing flexibility and providing employees with the means to provide a higher quality of care may offer some potential solutions to improve retention. Further work is required to understand the interaction between autonomy and standardisation of care, on retention. A cultural shift is required to improve equality matters and maintain staff wellbeing; a system leadership approach underpinned by data is therefore warranted.

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3 **Contributionship statement:**
4

5 SPS and RDS conceived this review. KB and AK conducted the literature search and extracted the data. KB led the
6 writing of this manuscript, with all other co-authors (SPS, RDS, CT, and AK) commenting on subsequent drafts. All
7 authors gave their approval for the final version to be published.
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10 **Competing interests:**
11 There are no competing interests.
12

13 **Data availability statement:**
14 All data relevant to the study are included in the article or uploaded as supplementary information
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16

17 **Figure legends/captions:**
18 Figure 1. PRISMA diagram detailing the steps taken in the literature search
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21 **References:**
22

23
24 1. NHS Improvement. Performance of the NHS provider sector for the year ended 31 March 2018 [Internet].
25 2018 [cited 2019 Sep 7]. Available from: [https://improvement.nhs.uk/documents/2852/Quarter_4_2017-](https://improvement.nhs.uk/documents/2852/Quarter_4_2017-18_performance_report.pdf)
26 18_performance_report.pdf
27
28 2. BMA - Working in a system under pressure [Internet]. [cited 2018 Nov 5]. Available from:
29 [https://www.bma.org.uk/collective-voice/influence/key-negotiations/nhs-priorities/working-in-a-system-](https://www.bma.org.uk/collective-voice/influence/key-negotiations/nhs-priorities/working-in-a-system-under-pressure)
30 under-pressure
31
32 3. Hird P. National Health Service Pay Review Body 32nd Report: 2019 [Internet]. 2019 Jul [cited 2020 Feb
33 11]. Report No.: 32. Available from: <https://www.gov.uk/government/organisations/nhs-pay-review-body>
34
35 4. Baker C. NHS staff from overseas: statistics. 2019 Aug 7 [cited 2020 Feb 11]; Available from:
36 <https://researchbriefings.parliament.uk/ResearchBriefing/Summary/CBP-7783>
37
38 5. Newman K, Maylor U, B C. The nurse retention, quality of care and patient satisfaction chain. journal of
39 health care quality assurance incorporating Leadership in health services. 2001;
40
41 6. McNeese-Smith DK. A content analysis of staff nurse descriptions of job satisfaction and dissatisfaction.
42 Journal of Advanced Nursing. 1999 Jun 1;29(6):1332–41.
43
44 7. Investing in success - NHS priorities for the new government [Internet]. NHS Providers; 2017 [cited 2018
45 Nov 10]. Available from: <http://nhsproviders.org/media/2933/investing-in-success-briefing.pdf>
46
47 8. Drennan VM, Halter M, Gale J, Harris R. Retaining nurses in metropolitan areas: insights from senior nurse
48 and human resource managers. Journal of Nursing Management. 2016 Nov;24(8):1041–8.
49
50 9. NHS staff health & wellbeing: CQUIN 2017-19 Indicator 1 Implementation Support [Internet]. NHS
51 England; 2018 [cited 2018 Nov 10]. Available from: [https://www.england.nhs.uk/wp-](https://www.england.nhs.uk/wp-content/uploads/2018/05/staff-health-wellbeing-cquin-2017-19-implementation-support.pdf)
52 content/uploads/2018/05/staff-health-wellbeing-cquin-2017-19-implementation-support.pdf
53
54 10. NHS Improvement, editor. Interim NHS People Plan [Internet]. 2019 [cited 2020 Feb 11]. Available from:
55 <https://improvement.nhs.uk/resources/interim-nhs-people-plan/>
56
57
58
59
60

11. Roberts A, Marshall L, Charlesworth A. A decade of austerity? The funding pressures facing the NHS from 2010/11 to 2021/22. London: Nuffield Trust [Internet]. 2012; Available from: <https://www.nuffieldtrust.org.uk/research/a-decade-of-austerity-the-funding-pressure-facing-the-nhs-from-2010-11-to-2021-22>
12. Francis R. Report of the Mid Staffordshire NHS Foundation Trust Public Inquiry: Executive Summary. The Stationery Office; 2013. 126 p.
13. Shamseer L, Moher D, Clarke M, Ghersi D, Liberati A, Petticrew M, et al. Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015: elaboration and explanation. *BMJ*. 2015 02;350:g7647.
14. CASP. CASP Checklists [Internet]. CASP - Critical Appraisal Skills Programme. [cited 2018 Nov 12]. Available from: <https://casp-uk.net/casp-tools-checklists/>
15. Newman K, Chansarkar B. 'The nurse satisfaction, service quality and nurse retention chain': implications for management of recruitment and retention. *Journal of management in medicine*. 2002;
16. Barron D, West E, Reeves R. Tied to the job: affective and relational components of nurse retention. *Journal of Health Services*. 2007 Apr;
17. Hann M, Reeves D, Sibbald B. Relationships between job satisfaction, intentions to leave family practice and actually leaving among family physicians in England. *Journal of Public Health*. 2011 Aug;21(4):499–503.
18. Lambert TW, Smith F, Goldacre MJ. Why doctors consider leaving UK medicine: qualitative analysis of comments from questionnaire surveys three years after graduation. *Journal of the Royal Society of Medicine*. 2018 Jan;111(1):18–30.
19. Simoens S, Scott A, Sibbald B. Job satisfaction, work-related stress and intentions to quit of Scottish GPs. *Scottish Medical Journal*. 2002 Aug;47(4):80–6.
20. Andrews GJ. Nurses who left the British NHS for private complementary medical practice: why did they leave? Would they return? *Journal of Advanced Nursing*. 2003 Feb;41(4):403–15.
21. Callaghan M. Nursing morale: what is it like and why? *Journal of Advanced Nursing*. 2003 Apr;42(1):82–9.
22. Coombs C, Arnold J, Loan-Clarke J, Martin C. Allied health professionals' intention to work for the National Health Service: A study of stayers, leavers and returners. *Health Services Management Research*. 2010 May;
23. Foster S. Making retention strategies work. *Journal of Nursing*. 2017 Feb;26(4).
24. Joshua-Amadi M. A study in motivation: recruitment and retention in the NHS. *Nursing Management - UK*. 2003 Feb;9(9):14–9.
25. Drennan V, Andrews S, Sidhu R, Peacock R. Attracting and retaining nurses in primary care. [Review] [27 refs]. *Journal of Community Nursing*. 2006 Jun;11(6):242–6.
26. Gray K, Wilde R, Shutes K. Enhancing nurse satisfaction: an exploration of specialty nurse shortage in a region of NHS England. *Nursing Management - UK*. 2018 Apr;25(1):26–33.

27. Harris RV, Ashcroft A, Burnside G, Dancer JM, Smith D, Grieveson B. Facets of job satisfaction of dental practitioners working in different organisational settings in England. *British Dental Journal*. 2008 Jan;204(1).

28. Sibbald B, Bojke C, Gravelle H. National survey of job satisfaction and retirement intentions among general practitioners in England. *BMJ*. 2003 Jan 4;326(7379):22.

29. Adams A, Bond S. Staffing in acute hospital wards: part 1. The relationship between number of nurses and ward organizational environment. *Journal of Nursing Management*. 2003 Sep;11(5):287–92.

30. Sibbald B, Enzer I, U R. GP job satisfaction in 1987, 1990 and 1998: Lessons for the future? *Family Practice*. 2000;

31. Storey C, Cheater F, Ford J, Leese B. Retention of nurses in the primary and community care workforce after the age of 50 years: Database analysis and literature review. *Journal of Advanced Nursing*. 2009 Aug;

32. Hutton D, Beardmore C, Patel I, H W, H P. Audit of the job satisfaction levels of the UK radiography and physics workforce in UK radiotherapy centres 2012. *Journal of Radiology*. 2014 Jul;

33. Carter MR, Tourangeau AE. Staying in nursing: what factors determine whether nurses intend to remain employed? *Journal of Advanced Nursing*. 2012 Jul;68(7):1589–600.

34. Robinson S, Murrells T, Smith EM. Retaining the mental health nursing workforce: early indicators of retention and attrition. *Journal of Mental Health Nursing*. 2005 Dec;14(4):230–42.

35. Frijters P, Shields MA, Price SW. Investigating the quitting decision of nurses: panel data evidence from the British National Health Service. *Health Economics*. 2007 Jan;16(1):57–73.

36. Storey C, Cheater F, Ford J, Leese B. Retaining older nurses in primary care and the community. *Journal of Advanced Nursing*. 2009 Jul;

37. Purvis LJ, Cropley M. The psychological contracts of National Health Service nurses. *Journal of Nursing Management*. 2003 Mar;11(2):107–20.

38. Loan-Clarke J, Arnold J, Coombs C, Hartley R, Bosley S. Retention, turnover and return-A longitudinal study of allied health professionals in Britain. *Human Resource Management Journal*. 2010;20(4):391–406.

39. Shields MA, Ward M. Improving nurse retention in the National Health Service in England: the impact of job satisfaction on intentions to quit. *Journal of Health Economics*. 2001 Sep;20(5):677–701.

40. Gould D, Fontenla M. Strategies to recruit and retain the nursing workforce in England: A telephone interview study. *Journal of Research in Nursing*. 2006 Jan 1;11(1):3–17.

41. Appleton K, House A, Dowell A. A survey of job satisfaction, sources of stress and psychological symptoms among general practitioners in Leeds. *Br J Gen Pract*. 1998 Mar;48(428):1059–63.

42. Ikenwilo D, Scott A. The effects of pay and job satisfaction on the labour supply of hospital consultants. *Health Economics*. 2007 Dec;16(12):1303–18.

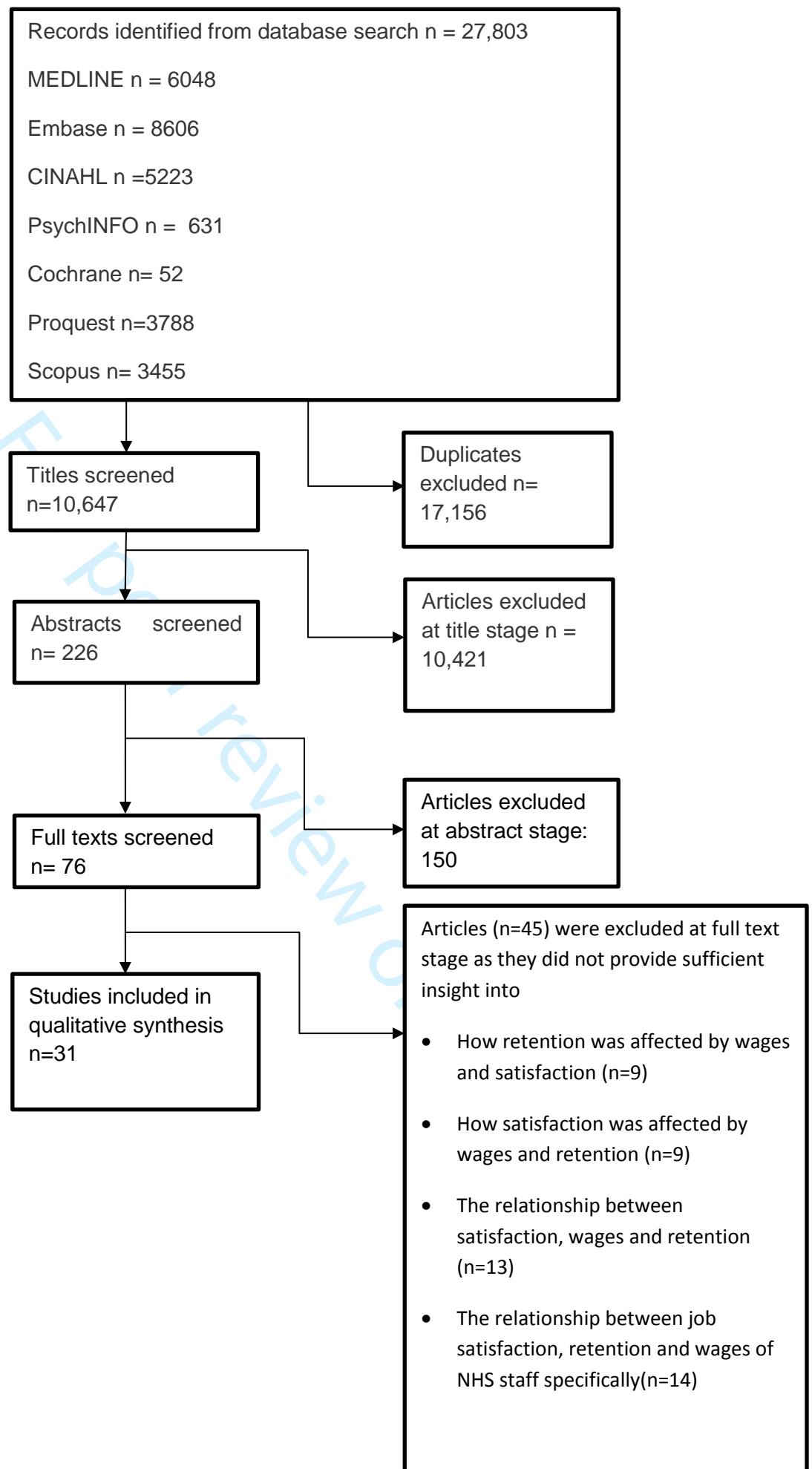
43. Larrabee JH, Janney MA, Ostrow CL, Withrow ML, Hobbs GR, Burant C. Predicting registered nurse job satisfaction and intent to leave. *J Nurs Adm*. 2003 May;33(5):271–83.

44. Grol R, Mokkink H, Smits A, Van Eijk J, Beek M, Mesker P, et al. Work satisfaction of general practitioners and the quality of patient care. *Family practice*. 1985;2(3):128–135.
45. Tovey EJ, Adams AE. The changing nature of nurses' job satisfaction: an exploration of sources of satisfaction in the 1990s. *Journal of Advanced Nursing*. 1999 Jul;30(1):150–8.
46. What has the impact been of recent caps on NHS agency staff spend? [Internet]. The King's Fund. 2016 [cited 2018 Feb 8]. Available from: <https://www.kingsfund.org.uk/blog/2016/03/nhs-agency-staff-spend>
47. Performance of the NHS provider sector for the month ended 30 June 18 FINAL [Internet]. NHS Improvement; 2018 Jun [cited 2018 Nov 10]. Available from: https://improvement.nhs.uk/documents/3209/Performance_of_the_NHS_provider_sector_for_the_month_ended_30_June_18_FINAL.pdf
48. Murray R. The trouble with locums. *BMJ*. 2017 Feb 6;356:j525.
49. Davies G. Review of capital expenditure in the NHS - National Audit Office (NAO) Report [Internet]. NAO; 2020 [cited 2020 Feb 11]. Available from: <https://www.nao.org.uk/report/review-of-capital-expenditure-in-the-nhs/>
50. Andrews J, Manthorpe J, Watson R. Employment transitions for older nurses: a qualitative study. *Journal of Advanced Nursing*. 2005 Aug;51(3):298–306.
51. Cope J. NHS Pay Review Body Thirtieth Report 2017. Department of Health and Social Care; 179 p.
52. Pearson R, Reilly P, Robinson D. Recruiting and developing an effective workforce in the British NHS. *Journal of Health Services*. 2004 Jan;17–23.
53. The WRES Implementation team. NHS Workforce Race Equality Standard [Internet]. NHS; 2020 Feb [cited 2020 Feb 20]. Report No.: 1. Available from: <https://www.england.nhs.uk/wp-content/uploads/2020/01/wres-2019-data-report.pdf>
54. Appleby J. Ethnic pay gap among NHS doctors. *BMJ* [Internet]. 2018 May 9 [cited 2020 Feb 20];362. Available from: <https://www.bmj.com/content/362/bmj.k3586>
55. Ferguson J, Ashcroft D m, Hassell K. Factors influencing job satisfaction in community and hospital pharmacy. *Journal of Pharmacy Practice*. 2013 May;
56. Shields MA, Ward M. Improving nurse retention in the National Health Service in England: the impact of job satisfaction on intentions to quit. *Journal of Health Economics*. 2001 Sep;20(5):677–701.
57. Moriarty J, Steils N, Manthorpe J, Calder RI, Martineau SJ, Norrie CM, et al. Rapid review on the effectiveness of continuing professional development in the health sector. 2019 Nov 11 [cited 2020 Feb 11]; Available from: [https://kclpure.kcl.ac.uk/portal/en/publications/rapid-review-on-the-effectiveness-of-continuing-professional-development-in-the-health-sector\(deb289ec-8bd2-47ab-96b5-e5f76b2cb07d\).html](https://kclpure.kcl.ac.uk/portal/en/publications/rapid-review-on-the-effectiveness-of-continuing-professional-development-in-the-health-sector(deb289ec-8bd2-47ab-96b5-e5f76b2cb07d).html)
58. Imo UO. Burnout and psychiatric morbidity among doctors in the UK: a systematic literature review of prevalence and associated factors. *BJPsych Bull*. 2017 Aug;41(4):197–204.

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59. Bewick M. Independent Review of Cardiac Surgery Service St Georges Hospital NHS Trust. [Internet]. 2018. Available from: <https://www.stgeorges.nhs.uk/wp-content/uploads/2018/08/Independent-review-of-cardiac-surgery-%E2%80%93-St-George%E2%80%99s-University-Hospitals....pdf>

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Appendices: Supporting Information

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Appendix 1: Terms used in searches and rationale

Three main components: retention, wages and satisfaction

Words synonymous with the above components were used in search terms, the table below details words and terms thought to be synonymous with the components.

Table A3. Synonyms of satisfaction, wages and retention to be used in searches

Satisfaction	Wages	Retention	Profession
Job Satisfaction/	"Salaries and Retention Fringe Benefits"/		Nurs*
Satisf*	Wages	Kept	Nursing Staff, Hospital/ Pharmac*
Content*	Salar*	Held	Cleaner
Fulfil*	Money	Maintain	Administrative Personnel/ Medical Receptionists/ Nurses' Aides/ Health Care Assistant Support Worker
Happ*	Incom*	Intent to stay	
Gratif*	Earnings	Remain	
motivat*	Remunerat*	Stay*	
	Money received	Retain*	
	"Salaries and Fringe Benefits"/	Keep	
			Porter Medical Secretaries/ Occupational Therap* Physiotherap* Speech Therap* Midwifery/

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Radiographer
Nutritionists/
Biomedical
Scientists
Dentists/
Clinical scientist
Sonographer
Physicians/
Doctor
Family Practice/
GP
Consultant
General
Practitioners/

Final search strategy:

Key/Summary
NHS: 1 or 2

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Profession: 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29

Satisfaction: 30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38

Wages: 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46

Retention: 47 or 48 or 49 or 50 or 51 or 52 or 53 or 54 or 55

NHS+Profession+Satisfaction: 56 and 57 and 58

NHS+Profession+Wages: 56 and 57 and 59

NHS+Profession+Retention: 56 and 57 and 60

NHS+Profession+Satisfaction+Wages: 56 and 57 and 58 and 59

NHS+Profession+Satisfaction+Retention: 56 and 57 and 58 and 60

NHS+Profession+Wages+Retention: 56 and 57 and 59 and 60

NHS+Profession+Wages+Retention+Satisfaction:

56 and 57 and 58 and 59 and 60

Comprehensive list of search terms and the strategy used:

1. NHS
2. National Health Service
3. Nurs*
4. Nursing Staff, Hospital/
5. Pharmac*
6. Cleaner
7. Administrative Personnel/
8. Medical Receptionists/
9. Nurses' Aides/
10. Health Care Assistant
11. Support Worker
12. Porter
13. Medical Secretaries/
14. Occupational Therap*
15. Physiotherap*
16. Speech Therap*

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- 17. Midwifery/
- 18. Radiographer
- 19. Nutritionists/
- 20. Biomedical Scientists
- 21. Dentists/
- 22. Clinical scientist
- 23. Sonographer
- 24. Physicians/
- 25. Doctor
- 26. Family Practice/
- 27. GP
- 28. Consultant
- 29. General Practitioners/

- 30. Job Satisfaction/
- 31. Satisf*
- 32. Content*
- 33. Fulfil*
- 34. Happ*
- 35. Gratif*
- 36. motivat*
- 37. morale
- 38. Welbeing

- 39. "Salaries and Fringe Benefits"/
- 40. Wages
- 41. Salar*
- 42. Money
- 43. Incom*
- 44. Earnings
- 45. Remunerat*
- 46. Money received

- 47. Retention

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48. Kept
 49. Held
 50. Maintain
 51. Intent to stay
 52. Remain
 53. Stay*
 54. Retain*
 55. Keep
-
56. 1 or 2
 57. 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29
 58. 30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38
 59. 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46
 60. 47 or 48 or 49 or 50 or 51 or 52 or 53 or 54 or 55
-
61. 56 and 57 and 58
 62. 56 and 57 and 59
 63. 56 and 57 and 60
 64. 56 and 57 and 58 and 59
 65. 56 and 57 and 58 and 60
 66. 56 and 57 and 59 and 60
 67. 56 and 57 and 58 and 59 and 60
- NHS: 1-2
Profession: 3-29
Satisfaction: 30-38
Wages: 39-46
Retention: 47-55

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Appendix 2: Data extraction form

Table A1. Data extraction form

Author and Time of study	Country, Setting and Profession	Design/Methods	Aims	Findings	Recommendations
Newman et al. (2002)	UK Nurses	Findings of Qualitative study Based on >130 interviews	To present empirical evidence of the main factors influencing nurse satisfaction and retention and empirical support for a conceptual framework.	NHS and trust environment, satisfaction, retention, patient satisfaction, service capability and service quality all sequentially linked	Holistic approach needed
Appleton et al. (1998)	UK General Practitioners (GPs)	Qualitative Postal questionnaire	To determine levels of psychological symptoms, job satisfaction, and subjective ill health in GPs and their relationship to practice characteristics, and to compare levels of job satisfaction since the introduction of the 1990 GP contract with those found before 1990.	low job satisfaction amongst GPs significant problems in the physical and mental well-being of GPs. Majority of GPs felt that work affected physical health	
Coombs et al. (2010)	UK Allied Health Professionals (AHPs)	Qualitative Postal survey	To identify what influences allied health professionals’ (AHPs) intention to work for the NHS.	Factors that influence intended behaviour to work for the NHS: Intention to work for NHS Professional development Media coverage numerous factors affect Moral obligation	Influencing public perceptions Emphasizing Professional development opportunities
Drennan et al. (2006)	UK Nurses (primary care)	Report on Department of Health project (systematic search, workshops, seminars)	To identify strategies and exemplars to assist Primary Care Trusts (PCTs) and the Workforce Development Confederations (WDCs) in Strategic Health	Did not find a lot of literature relating to the retention of nurses in primary care Geographical variation with regards to how	PCT, WDC and Department of health should address gap in detailed analysis’ and

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				Authorities in attracting and retaining nurses to primary care at registered nurse level	effective some retention factors are	strategic planning
Hutton et al. (2014)	UK Radiographers	Quantitative survey (Utilised job satisfaction survey)	To support the development of methods to improve job satisfaction and effectiveness through gain understanding of the work experiences of radiotherapy professionals	Workers are prone to burnout. Workload can affect job satisfaction and should thus be paid attention to. Professional development can enhance satisfaction.	Using professional development as a means to improve job satisfaction	
Harris et al (2008)	UK Dentists	Qualitative Survey	To compare global job satisfaction, and to compare facets of job satisfaction for practitioners working in the different organisational settings	Organisational settings affect the job satisfaction of dentists. Autonomy, development and the ability to provide quality care affect satisfaction	-	
Sibbald et al. (2000)	UK General Practitioners	Postal surveys	To investigate changes in the Job satisfaction of GPs from 1987-1998	Autonomy, pay and workload affect GP job satisfaction		
Shields and Ward (2001)	Netherlands Nurses	Quantitative (data drawn from 1994 national survey of NHS nursing staff) Review of literature	To investigate the determinants of job satisfaction for nurses and identify the relationship between job satisfaction and nurses' intentions to leave the NHS	Low job satisfaction is concentrated in newly qualified (young) nursing staff. Perceptions of low pay compared to other public sector works result in low job satisfaction. Work environment, encouragement of professional development and pay affect satisfaction. Pay could improve nurse retention		
Frijters et al. (2006)	England Nurses	Quantitative Utilised a longitudinal	Investigation into the quitting behaviour of NHS nurses (through the use of	Nurse retention may not be eliminated through increased pay		

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			survey (quarterly labour force survey)	a longitudinal survey)		
Simoens et al. (2002)	Scotland GPs	Review literature	of	To explain why Scottish GPs are happier with their job and more likely to stay than English GPs	Age, workload, work conflict, out of hours work, and increased demands affects job satisfaction	Creating more flexible working hours, Establishing more realistic expectations of the role by patients
Andrews (2003)	England Nurses	Qualitative Combined questionnaire and semi-structured interview		To investigate the experiences and motivations of nurses who practice complementary medicine in the private sector and if those have left the NHS would return	Nurses left due to not having enough autonomy, nursing injuries and disillusion with the job and the NHS	
Callaghan (2003)	England Nurses	Qualitative Interviews		To explore nursing morale and to identify the factors that nurses felt influenced it in order to ascertain the factors that affect nurse retention	Nurses have poor morale nurse education and increased health service resources might improve morale disillusionment goes further than pay woes	
Hann et al. (2011)	England Family physicians	Secondary data analysis (national survey of family physicians working in the National Health Service (NHS) of England in 2001)		To explore the relationships between job satisfaction, leaving intentions and actually leaving	satisfied physicians stayed longer and were more likely to return if they left. Workloads, flexible hours, NHS reforms and the erosion of autonomy were reasons that were commonly cited by those who left the NHS	
Drennan et al. (2016)	England Nurses	Qualitative Semi-structured interviews (thematically analysed)		To investigate the views of senior nurse and human resources managers of methods to retain hospital nurses (in a metropolitan	Work environments affect retention. Pay could potentially help retention problems. Poor management has a	Strategies should be tailored to specific segments in

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				area)	significant effect on the nursing intentions to leave workforce
Storey et al. (05/05/2009)	England Nurses		Qualitative Postal questionnaire	To examine issues associated with the impact of age on the retention of NHS nurses in England	Pension considerations, enhanced pay and reducing working hours close to retirement were identified
Robinson et al (2005)	Australia Mental health nurses	health	Qualitative Semi structured interviews Questionnaire	To identify relationships between factors (career plans, career experiences and pathways)	Improving retention in mental health nursing is essential for meeting new national standards for service delivery. pay in relation to level of responsibility was the most cited reason for leaving.
Storey et al. (29/05/2009)	England Nurses		Literature review Database analysis	a study conducted to explore strategies for retaining nurses and their implications for the primary and community care nursing workforce.	Wages, flexibility and injuries affect retention according to the literature surveyed. There is not a lot of literature in relation to the factors influencing retention of older primary and community care nurses. Different factors affect nurses of different ages.
Loan-Clarke et al. (2010)	United Kingdom AHP		Qualitative Questionnaire longitudinal	To identify reasons for staying in and out of the NHS	Pension has a greater effect on 'stayers' in the NHS but pay was the prime economic focus for non-NHS AHPs
Carter and Tourangeau (2012)	England Nurses		Quantitative	The aim of the study was to test, quantitatively, the principles of the Tourangeau et al. (2010) model of determinants of nurses' intentions to remain employed by using data collected from a	An inability to provide quality care affects satisfaction. Physical and psychological responses to work would be associated with nurses' intentions to remain

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				sample of nursing staff in England	employed
Tovey and Adams (1999)	England Nurses	Qualitative and Quantitative	and to identify the major sources of nurses’ job satisfaction and dissatisfaction in acute hospital wards in the early 1990s, and to assess whether or not nurses’ job satisfaction changes over time	nurses are not a homogenous group with regard to job satisfaction	
Newman et al. (2001)	UK Nurses	Mixed	To examine nurse retention	nurse retention is a complex issue	
Purvis and Cropley (2003)	UK Nurses	Quantitative	To understand the psychological contract model	To understand the expectations of NHS nurses in A psychological contract exists amongst NHS nurses	
Barron et al. 2007	England Nurses	Qualitative Cross-sectional postal survey	To investigate whether affective and relational components of nurses’ experience of work have a significant impact on their intentions to leave either the job or the nursing profession in models that control for other factors (sociodemographic, work conditions, perceptions of quality of care) that are known to affect career decisions.	Pay, Satisfaction, workload, abuse, environment, managers and autonomy all affect retention	
Sibbald et al. 2003	England GPs	Qualitative Survey	To measure general practitioners’ intentions to quit direct patient care, to assess changes over time and to investigate associated factors e.g. job satisfaction	Increased intentions to quit. Decreased satisfaction. Higher job satisfaction and having kids results in decreased likelihood of quitting. Dissatisfaction mirrors	Improve satisfaction. Intention to quit may not actually result in quitting. Improving satisfaction

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wider discontent with doctors changing role within society may increase numbers of GPs and improve their working lives.

Adams and Bond 2000

UK

Qualitative Survey
Ward Organizational Features Scales (WOFS)

the importance of organizational features of acute hospital wards as predictors of nurses' job satisfaction, over and above the importance of individual nurse characteristic

Autonomy, Recognition, interpersonal relationships affect satisfaction

Sufficient mix of appropriate staff to cover workload, personal development, good working relationships can be used to predict satisfaction

creating conditions that facilitate intra-professional teamwork to improve satisfaction.

relationship between grade and job satisfaction was weak.

Gould and Fonenla 2006

UK

Survey Telephone

Describe the type of initiatives undertaken by senior nurses responsible for recruitment and retention.

Retention has be learnt about through asking employees why they are quitting.

Job satisfaction influenced by managers

Flexibility has a role in retention and satisfaction particularly for shift workers

Joshua-Amadi 2002

UK Nurses

Qualitative Survey

Discover why registered nurses leave the NHS as well as to make appropriate recommendations to reduce poor retention

The below have a role in poor retention poor communication poor management inappropriate remuneration poor quality of care due to lack of planning, work overload and

The NHS should look into:
Leadership
equitable pay
job redesign - autonomy
valuing staff
flexibility

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					interruptions poor work environment (conflict) lack of a voice from professional body	sharing best practice Motivation
Foster 2017	UK Nurses	Qualitative Review	Identify solutions to retention crisis		valued opportunity to provide feedback positive environment	Use literature to devise a retention strategy
Ikenwilo and Scott 2007	UK Consultants	Quantitative	Evaluate change in consultant labour supply as a result of changes to pay		creasing job satisfaction may improve retention but will also reduce the hours worked of consultants	
Gray et al. (2018)	UK Nurses	Qualitative (survey) (400 questionnaires distributed, 127 responses)	Offers guidance on analysing, managing and addressing, dissatisfied nurses.		Respondents were largely satisfied with team working, CPD and autonomy. large minority of respondents were dissatisfied with their ability to carry out duties as they see fit.	nurse managers should work closely with higher education institutions and other professional institutions to ensure that there is apt CPD.
Lambert et al.	UK Doctors (three years after graduating)	Questionnaire , 5291 responses, qualitative	Report why recent medicine graduates consider leaving medicine or the UK.		Almost two thirds (n=3145 (60.3%) of respondents were not definitely intent on staying in UK medicine and one of the top reasons identified was ‘UK pay and conditions’ (doctors increasingly cited it as a reason.	Implementing policy changes resulting in improvements to resources, staffing and working conditions.

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Appendix 3: Reasons for exclusion of full texts

Table A2. details the reasons for exclusions of articles at the full text stage

Reason for exclusion	
Did not provide an apt level of insight into how retention is affected by wages/satisfaction - A	9
Did not provide an apt level insight into how satisfaction is affected by wages and how it affects retention – B	9
Did not provide enough insight into the relationship between satisfaction , wages and retention – C	13
Did not focus on the relationship between job satisfaction, retention and wages of NHS staff specifically -D	14
Total	45

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Appendix 4 CASP tool responses.

CASP: The CASP tool can be accessed via this link: <http://www.casp-uk.net/casp-tools-checklists>

Author and date	Clear Statement	Appropriateness of qualitative method	Appropriate Design	APT Recruitment	Apt Data collection	Consideration of relationship between research and participants	Ethical issues	Clear statement of findings	Rigor of data analysis	Valuable ?
1. Newman et al. (2002)	Y	Y	Y	Y	Y	CT	Y	Y	Y	V
2. Appleton et al. (1998)	Y	Y	Y	Y	CT	Y	CT	Y	Y	V
3. Coombs et al (2010)	Y	Y	Y	Y	Y	CT	CT	Y	Y	V
4. Drennan et al. (2006)	Y	Y	Y	Y	Y	Y	CT	Y	Y	V
5. Harris et al (2008)	Y	Y	Y	Y	CT	Y	CT	Y	Y	V
6. Hutton et al. (2014)	Y	Y	Y	Y	Y	CT	Y	Y	Y	V
7. Sibbald et al. (2000)	Y	Y	Y	Y	Y	Y	CT	Y	Y	V
8. Frijters et al. a. (2006)	Y	Y	Y	Y	Y	CT	CT	Y	Y	Y
9. Simoens et al. (2002)	Y	Y	Y	Y	Y	Y	CT	Y	Y	V
10. Andrews (2003)	Y	Y	Y	Y	Y	Y	CT	Y	Y	V
11. Callaghan (2003)	Y	Y	Y	Y	Y	Y	Y	Y	Y	V
12. Hann et al. (2011)	Y	Y	Y	Y	Y	Y	CT	Y	Y	V
13. Drennan et al. (2016)	Y	Y	Y	Y	Y	Y	Y	Y	Y	V
14. Storey et al. (29/05/2009)	Y	Y	Y	Y	Y	CT	CT	Y	Y	V
15. Robinson et al (2005)	Y	Y	Y	Y	Y	CT	CT	Y	Y	V
16. Storey et al. (05/05/2009)	Y	Y	Y	Y	Y	Y	CT	Y	Y	V

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17. Loan-Clarke et al. (2010)	Y	Y	Y	Y	Y	CT	CT	Y	Y	V
18. Tovey and Adams (1999)	Y	Y	Y	Y	Y	CT	CT	CT	Y	V
19. Carter and Tourangeau (2012)	Y	Y	Y	Y	Y	Y	Y	Y	Y	V
20. Newman et al. (2001)	Y	Y	Y	Y	Y	CT	CT	Y	Y	V
21. Barron et al. (2007)	Y	Y	Y	Y	Y	CT	Y	Y	Y	V
22. Purvis and Cropley (2003)	Y	Y	Y	Y	Y	Y	CT	Y	Y	V
23. Sibbald et al. (2003)	Y	Y	Y	Y	Y	Y	CT	Y	Y	V
24. Shields and Ward (2001)	Y	Y	Y	Y	Y	CT	Y	Y	Y	V
25. Adams and Bond (2000)	Y	Y	Y	Y	Y	Y	CT	Y	Y	V
26. Gould and Fontenla (2006)	Y	Y	Y	Y	Y	Y	Y	Y	Y	V
27. Joshua-Amadi (2002)	Y	Y	Y	Y	Y	Y	CT	Y	Y	V
28. Foster (2017)	Y	Y	Y	N	N	NA	CT	Y	N	V
29. Ikenwilo and Scott (2007)	Y	Y	Y	Y	Y	Y	Y	Y	Y	V
30. Gray et al. (2018)	Y	Y	Y	Y	Y	Y	Y	Y	Y	V
31. Lambert et al. (2018)	Y	Y	Y	Y	Y	CT	Y	Y	Y	V

Y= Yes

CT = Cannot tell

N=No

NA= Not applicable

V=Very

Funding:

There are no funders to report for this submission.

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The relationship between labour force satisfaction, wages and retention within the United Kingdom’s National Health Service: a systematic review of the literature

Contributionship statement:

SPS and RDS conceived this review. KB and AK conducted the literature search and extracted the data. KB led the writing of this manuscript, with all other co-authors (SPS, RDS, CT, and AK) commenting on subsequent drafts. All authors gave their approval for the final version to be published.

Competing interests:

There are no competing interests.

No Patient and Public involvement:

This research was done without patient and public involvement. Patients were not invited to contribute to the writing or editing of this nor were they invited to comment on the study design.



PRISMA 2009 Checklist

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	1
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	3/4
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	4
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	-
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	5
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	5
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	Appendix 1
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	5
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	5
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	-
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	6
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	-
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	-



PRISMA 2009 Checklist

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Section/topic	#	Checklist item	Reported on page #
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	-
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	-
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	Figure 1
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	Appendix 2
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	6/appendix 4
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	appendix 2/4
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	-
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	-
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	-
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	11
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	14/15
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	15
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	16

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